St. Paul Park Refining Co. LLC
301 St. Paul Park Road
St. Paul Park, MN 55071
651-459-9771

CERTIFIED MAIL: 70015 1520 0000 3102 3891

January 28, 2019

Air Quality Tracking Coordinator
Compliance Determination Unit
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

RE: Fourth Quarter 2018 Excess Emission and CEM Report
St. Paul Park Refining Co. LLC
AQD Facility ID No: 16300003
AQD File No: 0203 (AI ID 447)

Dear Sir/Madam:

St. Paul Park Refining Co. LLC hereby provides the Minnesota Pollution Control Agency (MPCA) with the enclosed Excess Emission and Continuous Emissions Monitor (CEM) Downtime Report for 4th quarter 2018.

On October 1, 2018, Andeavor completed a merger transaction with Marathon Petroleum Corporation. As such, Andeavor is now a subsidiary of Marathon Petroleum Corporation. All of Andeavor's subsidiaries continue as subsidiaries of Andeavor and thus also subsidiaries of Marathon Petroleum Corporation. In addition, as part of the merger transaction Andeavor is now known as Andeavor LLC. These merger-related transactions involve only Andeavor LLC, and there have been no changes to the Andeavor subsidiaries or to the Andeavor Logistics, LP subsidiaries (including Western Refining Logistics, LP) or its operations. St. Paul Park Refining Co. LLC remains the owner and operator of the refinery. Western Refining Logistics, LP is and will remain the owner and operator of pipeline, gathering, terminalling transportation and storage assets, and thus we are providing this notice as a courtesy.

Please contact me at (651) 769-6766 if you have any questions or if you need additional information.

Respectfully,

Shannon Lian
Environmental Superintendent
St. Paul Park Refining Co. LLC

Enclosures

cc: Patrick Foley (EPA) w/report – CERTIFIED MAIL: 7015 1520 0000 3102 3907
USEPA c/o Matrix w/report – CERTIFIED MAIL: 7015 1520 0000 3102 3914
Ms. Jennifer Carlson (MPCA) w/report – CERTIFIED MAIL: 7015 1520 0000 3102 3921
Ms. Cheryl Newton (EPA) w/report – CERTIFIED MAIL: 7015 1520 0000 3102 3938

Fourth Quarter 2018
Excess Emission and CEM Report

St. Paul Park Refining Co. LLC

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Section 1
Report Certification

Certification for 4th Quarter 2018 CEM Excess Emission and CEM Downtime Report

This section of the report serves as the St. Paul Park Refining Co. LLC and Western Refining Terminals LLC's written certification of the information contained within this report. This certification is comprehensive of the entire report and replaces the need for certification of each of the Excess Emissions and CEM Reporting Forms.

St. Paul Park Refining Co. LLC & Western Refining Terminal LLC

Based on the information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete.

Tommy Chavez, Vice-President & Refinery Manager

1-28-2019
Date

Section 2

Report Summary

Excess Emissions Summary
Fourth Quarter 2018

Excess Emissions Summary

Incident A – Flare H_2S Exceedance During Refinery Turnaround

On October 4, 2018, an increase in flare H_2S concentration was noted. Flare H_2S scavenger was verified at maximum injection rate and efforts began to identify a source. After the initial H_2S spike was observed, the level in the flare began to decrease. The source of the H_2S to the flare is unknown due to multiple pieces of equipment and piping that was being vented to the flare at the time of the exceedance because the refinery units were being de-inventoried for turnaround maintenance activities. For future turnarounds, planning will consider whether a TAR unit decontamination strategy is needed based on the timing and complexity of the unit shutdown, depressurization, and cleaning activities.

The flare H_2S 162 ppm/3-hr limit was exceeded for two hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs SO_2/24-hr reportable quantity.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	10/04/18 16:00	205
2	10/04/18 17:00	259

Incident B – Flare H_2S Exceedance During Refinery Turnaround

On October 5, 2018, the Crude Unit vented the tail gas compressor to the flare. An increase in flare H_2S occurred beyond what was expected to have been contributed by the compressor alone. Operations suspected another sour source of H_2S was also venting to the flare from other equipment depressurization/cleaning activities. A call was made to discontinue all venting to the flare and addition of the flare H_2S scavenger began. The source of the H_2S to the flare is unknown due to multiple pieces of equipment and piping that was being vented to the flare at the time of the exceedance because refinery unites were being de-inventoried for turnaround maintenance activities. For future turnarounds, planning will consider whether a TAR unit decontamination strategy is needed based on the timing and complexity of the unit shutdown, depressurization, and cleaning activities.

The flare H_2S 162 ppm/3-hr limit was exceeded for ten hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs SO_2/24-hr reportable quantity.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	10/05/18 13:00	224
2	10/05/18 14:00	284
3	10/05/18 15:00	420
4	10/05/18 16:00	471
5	10/05/18 17:00	425
6	10/05/18 18:00	281
7	10/05/18 19:00	276

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
8	10/05/18 20:00	356
9	10/05/18 21:00	490
10	10/05/18 22:00	299

Incident C – Flare Visible Emissions > 5 minutes/2-hours during Unit Start-up

On October 12, 2018, while starting-up the Sat Gas/Dehex Unit, the flare vent gas flow rate increased to 11 MSCFD; console operators began reviewing process parameters to determine the cause. The flaring resulted in visible emissions at the flare for approximately 78 minutes within a 2-hour period (20:00 – 22:00). During field operators troubleshooting efforts, it was discovered that exchanger 10-E-1 was not isolated which caused PSV 25 on the Stripper Tower to lift during stripper pressure increase in the start-up sequence. 10-E-1 is isolated from the stripper during normal operations. During turnaround a valve on the exchanger was replaced, subsequently the exchange was air freed during start-up and was not properly isolated from the stripper. When discovered, operators isolated 10-E-1 to reset PSV 25 and flare flow returned to normal. To prevent recurrence, 10-E-1 will be safely isolated from the process when the stripper is operating with additional safeguards put in place for verification of exchanger isolation (i.e., car seal procedure, start-up procedures).

There was no exceedance of the applicable flare vent gas work practice standard, flare 162 ppm H_2S/3-hr or 500 lbs SO_2/24-hr reportable quantity limits.

Incident D – FCC flue gas CO > 500 ppm/1-hr Avg. during Unit Start-up

During start-up of the FCC Unit on October 12, 2018, torch oil was used to warm-up the unit and exceedance of the CO 500 pm/1-hr avg. limit occurred for 44 hours. Excess oxygen was maintained > 1% for 43 of 44 hours (i.e., 5:00 -6:00 am).

To ensure excess oxygen is maintained >1% during FCC Unit hot stand-by and start-up, the cold start procedure will be updated to include a requirement for excess oxygen to be maintained >1% before torch oil is added to the FCC and during start-up.

Since measured CO data points are not verifiable or accurate when 50% greater than the high calibration gas concentration, a value of 1,333.4 ppm (1.5 times the daily span calibration gas concentration of 883.6 ppm CO) was substituted for all greater data points. The recalculated and verifiable value is provided in the last column of the table. SPPRC believes these periods to be exempt under SSM provisions NSPS J of the regulations and is providing the data for informational purposes only.

For compliance with MACT CC FCC 500 ppm/1-hr avg. CO limit, since these exceedances occurred during hot-standby/start-up of the FCC and oxygen was maintained for 43 of 44 hours, only one exceedance of the limit occurred.

Periods Over 500 ppm CO @ 0% O_2 1-hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)	% O2
1	10/12/18, 10:00	1619.1	1231.1	>1%
2	10/12/18, 11:00	1949.0	1325.4	>1%
3	10/12/18, 12:00	2353.9	1325.4	>1%

Periods Over 500 ppm CO @ 0% O_2 1-hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)	% O2
4	10/12/18, 13:00	2471.1	1325.4	>1%
5	10/12/18, 14:00	2526.6	1325.4	>1%
6	10/12/18, 15:00	2476.2	1325.4	>1%
7	10/12/18, 16:00	2177.5	1325.4	>1%
8	10/12/18, 17:00	2053.9	1325.4	>1%
9	10/12/18, 18:00	1781.8	1306.6	>1%
10	10/12/18, 19:00	1345.7	1315.0	>1%
11	10/12/18, 20:00	1283.7	1253.6	>1%
12	10/12/18, 21:00	1764.1	1246.3	>1%
13	10/12/18, 22:00	1290.4	1325.4	>1%
14	10/12/18, 23:00	1716.1	1201.9	>1%
15	10/13/18, 00:00	1934.9	1261.1	>1%
16	10/13/18, 01:00	1706.6	1189.6	>1%
17	10/13/18, 02:00	1076.4	837.4	>1%
18	10/13/18, 03:00	2356.1	1319.5	>1%
19	10/13/18, 04:00	2481.1	1325.4	>1%
20	10/13/18, 05:00	2477.2	1325.4	>1%
21	10/13/18, 06:00	2280.3	1325.4	>1%
22	10/13/18, 07:00	2370.8	1325.4	>1%
23	10/13/18, 08:00	2380.8	1325.4	>1%
24	10/13/18, 09:00	2064.9	1325.4	>1%
25	10/13/18, 10:00	2363.1	1322.0	>1%
26	10/13/18, 11:00	2285.3	1325.4	>1%
27	10/13/18, 12:00	2279.8	1325.4	>1%
28	10/13/18, 13:00	2368.1	1325.4	>1%
29	10/13/18, 14:00	2367.1	1325.4	>1%
30	10/13/18, 15:00	2345.7	1325.4	>1%
31	10/13/18, 16:00	2348.2	1325.4	>1%
32	10/13/18, 17:00	2366.9	1325.4	>1%
32	10/13/18, 18:00	2498.0	1325.4	>1%
33	10/13/18, 19:00	2247.8	1325.4	>1%
34	10/13/18, 20:00	2457.5	1325.4	>1%
35	10/13/18, 21:00	2471.5	1325.4	>1%
36	10/13/18, 22:00	2480.7	1325.4	>1%
37	10/13/18, 23:00	2464.8	1325.4	>1%
38	10/14/18, 00:00	2536.6	1325.4	>1%
39	10/14/18, 01:00	1964.8	1260.1	>1%
40	10/14/18, 02:00	2178.5	1304.3	>1%
41	10/14/18, 03:00	2267.1	1325.4	>1%
42	10/14/18, 04:00	2436.2	1325.4	>1%
43	10/14/18, 05:00	1878.2	961.4	<1%
44	10/14/18, 06:00	2009.8	1031.6	>1%

Incident E – Flare H_2S Exceedance During Unit Start-up

On 10/13/2018, during unit start-up, the level indication on the HDH Stripper Overhead Receiver (32F7) stuck at 25%. This caused 32F7 to fill up and send liquid to the sour gas knock out drum (11F8) which in turn filled up and sent excess liquid to the Amine Absorber (31D2B). The excess liquid then went to the Rich Amine Flash Drum (31F18) and then on to the Amine Tank (31T1). This caused the level in the Amine Tank to rise three feet over two hours. While trying to lower the level in 31T1, additional amine was sent to the Amine Absorber. The additional amine combined with the hydrocarbon coming into the system from the HDH Stripper Overhead Receiver caused the Rich Amine Flash drum to become liquid full and carry over to the Sour Gas KO Pot (30F9) and then on to the Tail Gas Compressor Suction Drum (2F10). The liquid level in 2F10 tripped the Tail Gas Compressor causing 30PC5A to open to the flare relieving sour gas to the flare. Flare H2S scavenger was used.

To prevent the level indicator on 32F7 from malfunctioning the future, a step to the existing preventive maintenance procedure will be added for cleaning and functional testing to confirm proper operation. In addition, level checks by operators will begin as soon as feed is introduced to the unit and levels begin to build in unit vessels and towers.

The flare H_2S 162 ppm/3-hr limit was exceeded for nine hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs SO_2/24-hr reportable quantity.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	10/14/18 05:00	692
2	10/14/18 06:00	1574
3	10/14/18 07:00	2456
4	10/14/18 08:00	2658
5	10/14/18 09:00	2652
6	10/14/18 10:00	2513
7	10/14/18 11:00	1794
8	10/14/18 12:00	984
9	10/14/18 13:00	276

Incident F – Flare H2S Exceedance Due to PSV Malfunction

On October 16, 2018, operations began start-up of tail gas compressor (2-GC-2B) and noticed a flare H_2S spike. Flare H_2S scavenger was injected at maximum rate and troubleshooting to determine the sour H_2S source began and 2-PSV-235 was found to be relieving to the flare from the tail gas compressor. Operations switched from the main tail gas compressor to the back-up tail gas compressor. The cause of the PSV lift was unknown until occurrence of a similar incident on November 12-13, 2018 which identified the cause (see Incident I).

The flare H_2S 162 ppm/3-hr limit was exceeded for three hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs SO_2/24-hr reportable quantity.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	10/16/18 12:00	232
2	10/16/18 13:00	308
3	10/16/18 14:00	299

Incident G – Flare H2S Exceedance, Depressuring 32-GC-8 for Maintenance

On October 16, 2018, the reformer was depressuring compressor 32-GC-8 to the flare through an H_2S scrubber to prepare for maintenance. Addition of flare H_2S scavenger was started and troubleshooting began to determine the source of H_2S. A valve used to isolate the compressor was leaking to the flare. To prevent recurrence, hard piping from the double block and bleeds from the compressor will be replaced with block valves equipped with bull plugs.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	10/16/18 22:00	261
2	10/16/18 23:00	275
3	10/17/18 0:00	281

The flare H_2S 162 ppm/3-hr limit was exceeded for three hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs SO_2/24-hr reportable quantity.

Incident H – Flare Visible Emissions due to SDA Pump Malfunction

On 10/22/2018, the SDA main solvent pump tripped causing 44-PSV-311 to lift and vent to the flare which resulted in visible emissions for 7 minutes 21 seconds within a two-hour period (8:45 – 10:45 am). Operations restarted the pump after the trip, but the PSV would not reseat. The SDA Unit was shut down so that the PSV could be removed and tested. Incorrect factory temperature settings on the pump resulted (in the solvent pump trip. The temperature setting on the pump has been corrected.

There was no exceedance of the applicable flare vent gas work practice standard, flare 162 ppm H_2S/3-hr or 500 lbs SO_2/24-hr reportable quantity limits.

Incident I – Flare H2S Exceedance Due to PSV Malfunction

On November 12, 2018, an increase in flare H_2S occurred and troubleshooting began to determine source of sour H_2S. Flare H2S scavenger was already being used due to an increase in flare H_2S noted by Operations on November 11, 2018. The Crude Unit Tail Gas Compressor (02-GC-2B) was identified as a potential source. The compressor was shut down and the back-up compressor was placed on-line. 02-PSV-235 on the compressor was isolated and the flare H_2S began to decrease. Further troubleshooting determined that the PSV was working properly but heat tracing on the impulse line on the PSV was installed incorrectly resulting in freezing of the instrument when the temperature was below freezing. When the impulse line freezes, pilot pressure is no longer available to maintain control of the instrument and the instrument malfunctions. The instrumentation was winterized with electrical heat tracing and an insulation blanket. Tail Gas Compressor (02-GC-2B) was returned to service with no issue. The malfunction of the PSV due to winter conditions is likely the cause of the flare H2S exceedance that occurred on October 16, 2018 (i.e., see Incident F).

To prevent recurrence, operational and maintenance procedures will be updated to include verification during winter months that pilot operated PSVs are properly insulated after maintenance and prior to start-up.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	11/12/18 0:00	249

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
2	11/12/18 1:00	371
3	11/12/18 2:00	384
4	11/12/18 3:00	302
5	11/12/18 4:00	179
6	11/12/18 13:00	183
7	11/12/18 14:00	191
8	11/13/18 6:00	170
9	11/13/18 7:00	179
10	11/13/18 8:00	189
11	11/13/18 9:00	186
12	11/13/18 10:00	176

The flare H_2S 162 ppm/3-hr limit was exceeded for twelve hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs SO_2/24-hr reportable quantity.

Incident J – Exceedance of FCC 20%/3-hr Limit due to Baghouse Malfunction

On 11/25/2018, at approximately 8-F-50 FSS (i.e., one of the filter systems that controls particulates from the FCC) was taken off-line to allow for cooling prior to bag change-out. While 8-F-50- FSS was cooling, and the FCC regenerator was venting to 8-F-49-FSS, a bag failure occurred on 8-F-49-FSS which resulted in an increase in opacity above 20%. Bags were replaced on 8-F-50 and was returned to service and 8-F-499 FSS was taken off-line. Preventive maintenance is conducted on the baghouses routinely. In addition, the differential pressure in each baghouse is continuously monitored to identify conditions in which bags may become plugged or a hole were to develop.

Periods over 20%/3-hour Avg.	Date and Time	20% Opacity//3-hour Avg. (% opacity)
1	11/26/18 2:00	21
2	11/26/18 3:00	21
3	11/26/18 4:00	22
4	11/26/18 5:00	23
5	11/26/18 6:00	23
6	11/26/18 7:00	23
7	11/26/18 8:00	23
8	11/26/18 9:00	24
9	11/26/18 10:00	24
10	11/26/18 11:00	24
11	11/26/18 12:00	25
12	11/26/18 13:00	25
13	11/26/18 14:00	25
14	11/26/18 15:00	24
15	11/26/18 16:00	25

Periods over 20%/3-hour Avg.	Date and Time	20% Opacity//3-hour Avg. (% opacity)
16	11/26/18 17:00	25
17	11/26/18 18:00	25
18	11/26/18 19:00	25
19	11/26/18 20:00	26
20	11/26/18 21:00	26
21	11/26/18 22:00	26
22	11/26/18 23:00	26
23	11/26/18 0:00	25
24	11/27/18 1:00	24
25	11/27/18 2:00	23
26	11/27/18 3:00	23
27	11/27/18 4:00	23
28	11/27/18 5:00	24
29	11/27/18 6:00	24
30	11/27/18 7:00	24
31	11/27/18 8:00	22

Incident K – Exceedance of FCC Opacity 6-min Average

On 12/17/2018, Operations was beginning the process of bypassing the fourth stage separator, 8-F-50 and an increase in FCC 6-minute average opacity resulted. When the increase was noted, the valve sequencing for the bypass was reversed and the opacity returned to normal levels.

SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods over 30% Opacity/6-min Avg. (Running total)	Periods over 30% Opacity/6-min Avg. Allowed	Date and Time	6-min Avg. Opacity (% opacity)
1	1	12/17/18 19:30	39.4
2		12/17/18 19:36	40.7

SARA Reportable Release Summary

There were no SARA reportable releases during 4th quarter 2018.

SBC/BWON Vent Gas System

During the 4th quarter 2018, BWON vent gasses were bypassed around the WWTP TO and associated temperature monitor 0.28% percent of the time or 6.2 hours.

Bypasses were the result of natural gas curtailment, scheduled maintenance and/or testing activities, or minor WWTP malfunctions where the oxidizer is bypassed due to safety concerns and process malfunctions.

Monitor Bypass Summary

There were no monitor bypasses during the 4th quarter 2018.

SRU Bypass Summary

There were no SRU bypasses during the 4th quarter 2018 that resulted in an exceedance of an SO_2 emission limit.

Temporary Flare

As previously reported, a planned maintenance turnaround was completed at the refinery during September and October 2018. As part of this turnaround, SPPRC replaced the existing main flare stack and flare tip. A temporary flare was used while the flare was out of service. The replacement of the existing flare and temporary flare operation began September 26th and was completed October 6th.

Section 3

Excess Emissions and CEM Reporting Forms

4th Quarter 2018 - Percent Excess Emissions and CEM Downtime Summary

Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
#2 SRU/SCOT SO2/O2 (ppmv, 12-hr ave)	0.00%	0.05%
#2 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave)	0.00%	0.05%
#2 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave)	0.00%	0.05%
#2 SRU/SCOT bypasses	0.00%	---
Heater 36-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-1 fuel gas flow meter	---	0.00%
Heater 36-B-2, 3, and 4 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-2, 3, and 4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-2, 3, and 4 fuel gas flow meter	---	0.00%
Heater 36-B-6E (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-6E (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-6E fuel gas flow meter	---	0.00%
Heater 36-B-6W (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-6W (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-6W fuel gas flow meter	---	0.00%
Heater 37-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 37-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 37-B-1 fuel gas flow meter	---	0.00%
Heater 37-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 37-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 37-B-2 fuel gas flow meter	---	0.00%
Heaters 38-B-1, 38-B-2 (lb SO2/hr, 3-hr rolling ave)	0.00%	---
Heaters 38-B-1, 38-B-2 (lb SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heaters 38-B-1, 38-B-2 NSP Gas flow meter	---	0.00%
Heaters 38-B-1, 38-B-2 PSA fuel gas flow meter	---	0.00%
Light oil loadrack **VRU** (TOC ppmv, 6-hr average)	0.00%	0.00%
Light oil loadrack- **Permanent** VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave)	0.00%	0.00%
Refinery flare (presence of pilots)	---	0.00%
Refinery flare - SARA Reportable emissions - SO2	0.00%	5.03%
Refinery flare - SARA Reportable emissions - NOx	0.00%	---
Refinery flare - H2S (3-hour rolling average)	1.29%	0.05%
Temporary flare (presence of pilots)	---	0.18%
Temporary flare - SARA Reportable emissions - SO2	0.00%	15.93%
Temporary flare - SARA Reportable emissions - NOx	0.00%	---
Temporary flare - H2S (3-hour rolling average)	1.77%	15.93%
W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave)	0.00%	0.27%
W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave)	0.00%	0.00%
W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave)	0.00%	0.00%
#3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave)	0.00%	0.55%
#3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave)	0.00%	0.55%
#3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave)	0.00%	0.55%
#3 SRU/SCOT Bypasses	0.00%	---
NP VEPR Phase 1 - **Catalytic AB** w/Heat Exchg (Temp, 3-hr rolling ave)	0.00%	0.00%
NP VEPR Phase 2 - **Catalytic AB** w/Heat Exchg (Temp, 3-hr rolling ave)	0.00%	0.00%
Boiler 7 NOx (lb/MMBtu, 30 day rolling ave)	0.00%	2.33%
Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave)	0.00%	---
Boiler 7 fuel gas flow meter	---	1.59%
Boiler 8 NOx (lb/MMBtu, 30 day rolling ave)	0.00%	2.28%
Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave)	0.00%	---
Boiler 8 fuel gas flow meter	---	1.55%
Heater 8-B-1 (lb SO2/mmbtu, 3-hr average)	0.00%	---
Heater 8-B-1 (lb SO2/hr, 3-hr average)	0.00%	---
Heater 8-B-1 (ppmvd, 30-day average)	0.00%	0.10%
Heater 8-B-1 fuel gas flow meter	---	0.00%
GP 032 CO (TPY, Combined 12-month Rolling Sum)	0.00%	---
Boiler 7 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 8)	---	2.33%
Boiler 8 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 7)	---	2.28%
GP 032 NOx (TPY, Combined 12-month Rolling Sum)	0.00%	---
Boiler 7 NOx (TPY, Combined 12-month Rolling Sum w/ Boiler 8)	---	2.33%
Boiler 8 NOx (TPY, Combined 12-month Rolling Sum w/ Boiler 7)	---	2.28%

Notes:

(1) 0.00% indicates No Excess Emissions.

4th Quarter 2018 - Percent Excess Emissions and CEM Downtime Summary

Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
Refinery Fuel Gas Drum (H2S ppmv, 3-hr rolling ave)	0.00%	2.05%
Refinery Fuel Gas Drum (H2S ppmv, 365-day rolling ave)	0.00%	2.05%
Heater 28-B-1 (lb SO2/mmbtu, 3 hr average)	0.00%	---
Heater 28-B-1 (lb SO2/hr, 3 hr average)	0.00%	---
Heater 28-B-1 fuel gas flow meter	---	0.00%
FCC Opacity (30%, 6-min average)	0.01%	0.55%
FCC Opacity (20%, 3-hr average)	1.61%	0.55%
FCC CO (ppm)	2.28%	0.21%
FCC NOx (ppm - 365 day rolling average)	0.00%	0.21%
FCC NOx (ppm - 7 day rolling average)	0.00%	0.21%
FCC SO2 (ppm - 7 day rolling average)	0.00%	0.21%
FCC SO2 (ppm - 365 day rolling average)	0.00%	0.21%
FCC SO2 (lb/hr)	0.00%	0.21%
FCC SOx (lb/1000 lb coke burn)	0.00%	0.21%
Heater 5-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 5-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 5-B-1 fuel gas flow meter	---	0.00%
Heater 2-B-3 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.00%
Heater 2-B-3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 2-B-3 (lbs NOx/mmbtu, 3-hr rolling ave)	0.00%	0.21%
Heater 2-B-3 (lbs NOx/mmbtu, 12-Month rolling ave)	0.00%	0.21%
Heater 2-B-3 NSP fuel gas flow meter	---	0.00%
Heater 2-B-3 Fuel Gas flow meter	---	0.00%
Heater 2-B-3 NOX/O2 CEM	---	0.21%
Heater 1-B-5 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 1-B-5 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 1-B-5 fuel gas flow meter	---	0.00%
Heater 1-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 1-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 1-B-7 fuel gas flow meter	---	0.00%
Heater 29-B-1/29-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 29-B-1/29-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 29-B-1/29-B-2 fuel gas flow meter	---	0.00%
Heater 3-B-1/2/3 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-1/2/3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-1/2/3 fuel gas flow meter	---	0.00%
Heater 3-B-4 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-4 fuel gas flow meter	---	0.00%
Heater 3-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-7 fuel gas flow meter	---	0.00%
Heater 3-B-8 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-8 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-8 fuel gas flow meter	---	0.00%
Heater 34-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 34-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 34-B-1 fuel gas flow meter	---	0.31%
Heater 34-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 34-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 34-B-2 fuel gas flow meter	---	0.00%
Heater 34-B-2 fuel gas flow meter	---	0.00%
Heater 32-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 32-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 32-B-1 fuel gas flow meter	---	0.31%
Heater 32-B-1 (NOx lb/mmbtu, 365 day rolling ave)	0.00%	0.31%
Heater 10-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 10-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 10-B-1 fuel gas flow meter	---	0.00%

4th Quarter 2018 - Percent Excess Emissions and CEM Downtime Summary

Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
(2) Monitor Downtime includes daily calibration checks for opacity.		
(3) 0.00% indicates No Monitor Downtime.		

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS (H2S) HCL Opacity
Other:

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Vista 2020 GC

MFR: Combustion Engineering

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: COMG7

EMISSION LIMITS AND AVERAGING TIME:
162 ppm H2S - 3 hr rolling average
60 ppm H2S - 365 day rolling average

EMISSION UNIT(S): Refinery fuel gas system

EMISSION BASIS: 40 CFR 60 NSPS Subpart Ja

ASSOCIATED ITEMS: EQUI1, EQUI3, EQUI4, EQUI5, EQUI6, EQUI7, EQUI8, EQUI9, EQUI10, EQUI11, EQUI12, EQUI13, EQUI14, EQUI15, EQUI17, EQUI18, EQUI19, EQUI20, EQUI21, EQUI26, , EQUI326, EQUI23, EQUI24, EQUI33, EQUI42, EQUI43, and EQUI44.

NOTE: H2S limits within 40 CFR 60 Subp. Ja only apply to EQUI42, EQUI43, and EQUI44.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2151

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	3-hour	365-day
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	1.00
d) Other known causes	43.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	44.00
3 PERCENT OF TOTAL CEM DOWNTIME	2.05%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Refinery fuel gas system

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Refinery fuel gas system

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 365-day average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Refinery fuel gas system

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
11/29/2018 11:00		
11/29/2018 12:00	1.00	Quarterly audit
Total	1.00	
d) Other known causes		
10/4/2018 11:00		
10/4/2018 13:00	2.00	Communications error
10/5/2018 9:00		
10/5/2018 10:00	1.00	Communications error
10/24/2018 9:00		
10/24/2018 15:00	6.00	Preventative maintenance
11/27/2018 13:00		
11/27/2018 14:00	1.00	Linearity issues; testing
11/27/2018 15:00		
11/27/2018 17:00	2.00	Linearity issues; testing
11/28/2018 10:00		
11/28/2018 11:00	1.00	Linearity issues; testing;
11/28/2018 13:00		
11/28/2018 15:00	2.00	Linearity issues; testing
11/29/2018 8:00		
11/29/2018 10:00	2.00	Communications error
12/18/2018 11:00		
12/18/2018 17:00	6.00	Linearity issues; testing
12/19/2018 9:00		
12/19/2018 21:00	12.00	Linearity issues; testing
12/20/2018 9:00		
12/20/2018 17:00	8.00	Linearity issues; testing
Total	43.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR
MODEL: Fuel Gas Flow Rate/FG H2S CEM
MFR:

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME:
1.44 lb SO2/hr - 3 hour rolling avg.
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION SUBJECT ITEM:
EQUI1

EMISSION UNIT(S):
Alkylation
Heater 28-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI173, STRU47, COMG20

NOTE: There was zero fuel oil runtime during the quarter.

OPERATING HOURS OF EMISSION UNIT:
1888

A. EMISSION DATA SUMMARY			B. CEM Performance Summary	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
a) Startup/Shutdown	0.00	0.00		
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%		3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 28-B-1 (EQUI1)

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 SOX NOx CO CO2 O2 TRS H2S HCL (Opacity)

Other: Metal HAP per MACT Subpart UUU

REPORTING QUARTER: Fourth, 2018

MONITOR
MODEL: 440
MFR: Thermo Electron Corporation

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMITS AND AVERAGING TIME:
30% opacity; except for one six minute period in any one hour (1)
20% opacity/3-hr Avg.

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS:
MN Rule 7011.1405, subp. 1, Item B
40 CFR 63.1564

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is approximately a 30,500 bpd fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 1937

A. EMISSION DATA SUMMARY				B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (6-MIN, 30% Limit)		1 DURATION OF EXCESS EMISSIONS (3-HR, 20% Limit)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (MIN)	
a) Startup/Shutdown	0.00	a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) Process problems	0.00	c) QA calibration	642.00
d) Other known causes	6.00	d) Other known causes	31.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	f) Soot blowing	0.00		
g) Fuel problems	0.00	g) Fuel problems	0.00		
2 TOTAL DURATION (MIN)	6.00	2 TOTAL DURATION (HR)	31.00	2 TOTAL DURATION (MIN)	642.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.01%	3 PERCENT OF TOTAL EXCESS EMISSIONS	1.61%	3 PERCENT OF TOTAL CEM DOWNTIME	0.55%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NO: (1) According to MN Rules 7011.1405, Subpt. 1, B and MACT II, an exceedance of this standard occurs whenever any one-hour period contains two or more 6-minute periods during which the average opacity exceeds 30%. As allowed in the above noted regulation, if two or more 6-minute average is exceeded in any one hour, it is reported in the summary at the front of this report.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Opacity (20% 3-hr Limit)

DATE/TIME	TOTAL DURATION (HR)	MAX. OPACITY (%)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			
total	0	No excess emissions.	
b) Control equipment			
10/1/2018			
1/1/2019			
total	0	No excess emissions.	
c) Process problems			
10/1/2018			
1/1/2019			
total	0	No excess emissions.	
d) Other known causes			
11/26/18 2:00			
11/27/18 9:00	31	26	See the incident description in the report narrative.
total	31		
e) Unknown causes			
10/1/2018			
1/1/2019			
total	0	No excess emissions.	
f) Soot blowing			
10/1/2018			
1/1/2019			
total	0	No excess emissions.	
g) Fuel problems			
10/1/2018			
1/1/2019			
total	0	No excess emissions.	

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Opacity

DATE/TIME	TOTAL DURATION (MIN)	MAX. OPACITY (%) # of 6 min	MAX. OPACITY (%) Max Opacity (%)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown				
10/1/2018				
1/1/2019				
total	0	0		No excess emissions.
b) Control equipment				
10/1/2018				
1/1/2019				
total	0	0		No excess emissions.
c) Process problems				
10/1/2018				
1/1/2019				
total	0	0		No excess emissions.
d) Other known causes				
12/17/18 19:30				
12/17/18 19:36	6	40.7		See the incident description in the report narrative.
total	6			
e) Unknown causes				
10/1/2018				
1/1/2019				
total	0	0		No excess emissions.
f) Soot blowing				
10/1/2018				
1/1/2019				
total	0	0		No excess emissions.
g) Fuel problems				
10/1/2018				
1/1/2019				
total	0	0		No excess emissions.

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE # #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Opacity

DATE/TIME	TOTAL DURATION (MIN)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
10/1/2018 12:31/2018	558.00	Daily calibrations
10/29/18 13:42 10/29/18 15:06	84.00	Quarterly audit
Total	642.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 SOX NOx (CO) CO2 O2 TRS H2S HCL Opacity

Other: Organic HAP per MACT Subpart UUU

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Advance Optima (Uras 14) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME: 500 ppmvd - 1 hour average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: NSPS Subpart J - 40 CFR 60.103(a)

ASSOCIATED ITEMS: EQUI164, TREA17

40 CFR 63.1565(a)(1)(ii)

40 CFR 63, MACT Subpart UUU, Table 8, Option 2

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 1937

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	44.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	2.00
d) Other known causes	0.00	d) Other known causes	2.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	44.00	2 TOTAL DURATION (HRS)	4.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	2.28%	3 PERCENT OF TOTAL CEM DOWNTIME	0.21%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: Actual monitored values are noted in this section. During excess emission events, a value equal to 1.5 times the high calibration gas concentration is used to replace any analyzer readings over that value since measured data points are not verifiable or accurate when at least 50% greater than the high calibration gas concentration. See Excess Emissions Summary for greater detail.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: CO and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), hourly average Actual	Recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown				
10/12/2018 10:00				
10/14/2018 6:00	44.00	2536.6	1,325	See the incident description in the report narrative.
Total	44.00			
b) Control equipment				
10/1/2018				
1/1/2019				
Total	0.00	No excess emissions.		
c) Process problems				
10/1/2018				
1/1/2019				
Total	0.00	No excess emissions.		
d) Other known causes				
10/1/2018				
1/1/2019				
Total	0.00	No excess emissions.		
e) Unknown causes				
10/1/2018				
1/1/2019				
Total	0.00	No excess emissions.		
f) Soot blowing				
10/1/2018				
1/1/2019				
Total	0.00	No excess emissions.		
g) Fuel problems				
10/1/2018				
1/1/2019				
Total	0.00	No excess emissions.		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: CO and O2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
11/27/18 9:00		
11/27/18 11:00	2.00	Quarterly audit
Total	2.00	
d) Other known causes		
10/10/2018 1:00		
10/10/2018 3:00	2.00	Preventative maintenance
Total	2.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 SOX (NOx) CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Advance Optima (Uras UV) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME:
90 ppmvd, O2 free - 7 day rolling average
70 ppmvd, O2 free - 365 day rolling average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: Consent Decree Effective 4/3/06

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 1937

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	7 Day	365 Day
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	2.00
d) Other known causes	2.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	4.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.21%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), 7-day rolling avg	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), 365-day rolling avg	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	See FCC CO CEM downtime.
b) Non-monitor malfunction		
Total	0.00	See FCC CO CEM downtime.
c) QA calibration		
Total	2.00	See FCC CO CEM downtime.
d) Other known causes		
Total	2.00	See FCC CO CEM downtime.
e) Unknown causes		
Total	0.00	See FCC CO CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) SOX NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Advance Optima (Limas UV) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME:
100 ppmvd, O2 free - 7 day rolling average
50 ppmvd, O2 free - 365 day rolling average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: Consent Decree Effective 6/30/06

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 1937

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	7 Day	365 Day
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	2.00
d) Other known causes	2.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	4.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.21%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2 ppmvd, O2 free

DATE/TIME	TOTAL DURATION (days)	MAX. CONCENTRATION (ppm), 7-day average	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2 ppmvd, O2 free

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), 365-day average	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2 ppmvd, O2 free

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
NOTE: **CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm**		
a) Monitor malfunction		
Total	0.00	See FCC CO CEM downtime.
b) Non-monitor malfunction		
Total	0.00	See FCC CO CEM downtime.
c) QA calibration		
Total	2.00	See FCC CO CEM downtime.
d) Other known causes		
Total	2.00	See FCC CO CEM downtime.
e) Unknown causes		
Total	0.00	See FCC CO CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) SOX NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Advance Optima (Limas UV) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME: 793.65 lbs/hr - 3 hour rolling average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 1937

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	2.00
d) Other known causes	0.00	d) Other known causes	2.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	4.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.21%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lbs/hr)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

a) Monitor malfunction

Total	0.00	See FCC SO2 ppm CEM downtime.

b) Non-monitor malfunction

Total	0.00	See FCC SO2 ppm CEM downtime.

c) QA calibration

Total	2.00	See FCC SO2 ppm CEM downtime.

d) Other known causes

Total	2.00	See FCC SO2 ppm CEM downtime.

e) Unknown causes

Total	0.00	See FCC SO2 ppm CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (SOX) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Advance Optima (Limas UV) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME: 9.8 lb SOx/1000 lb coke burn - 7 day rolling avg

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: Consent Decree, Appendix I, and NSPS 60.104(b)(2), 60.104(c)

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 1937

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	2.00
d) Other known causes	0.00	d) Other known causes	2.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	4.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.21%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Lb SOX

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb Sox/ton), hourly average	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Lb SOX

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

a) Monitor malfunction

Total	0.00	See FCC NOx or CO CEM downtime.

b) Non-monitor malfunction

Total	0.00	See FCC Nox or CO CEM downtime.

c) QA calibration

Total	2.00	See FCC NOx or CO CEM downtime.

d) Other known causes

Total	2.00	See FCC Nox or CO CEM downtime.

e) Unknown causes

Total	0.00	See FCC NOx or CO CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI3

EMISSION LIMITS AND AVERAGING TIME:
2.62 lb SO2/hr - 3 hour rolling avg.
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): No. 2 Crude Vacuum Heater
5-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG20, EQUI163, EQUI175, EQUI206, STRU70, COMG20

TOTAL OPERATING HOURS OF EMISSION UNIT: Total 1974

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 5-B-1

POLLUTANT MONITORED: SO2 lb/hr - 3 hour rolling average

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 5-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu - 3 hour rolling average

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 5-B-1, **fuel gas** flow meter

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity
Other:

REPORTING QUARTER: Fourth, 2018

MONITOR
MODEL: Advance Optima Limas 11
MFR: ABB

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME:
0.05 lbs/mmbtu - 12 month rolling average
0.14 lbs/mmbtu - 3 hour rolling average

EMISSION SUBJECT ITEM: EQUI4

EMISSION BASIS:
BACT PSD, 40CFR 52.21, Minn. R. 7007.3000

EMISSION UNIT(S): Heater 2-B-3

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI176, EQUI296, STRU15

TOTAL OPERATING HOURS
OF EMISSION UNIT: 1934

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	12 mo	3 hr	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	1.00
d) Other known causes	0.00	0.00	d) Other known causes	3.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	4.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.21%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 2-B-3

POLLUTANT MONITORED: **NOx lb/mmbtu (12 month rolling avg) and O2**

DATE/TIME	DURATION	CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 2-B-3

POLLUTANT MONITORED: **NOx lb/mmbtu (3 hr rolling avg) and O2**

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lbs/mmbtu)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 2-B-3

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
	0.00	
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
10/22/2018 14:00		
10/22/2018 15:00	1.00	Quarterly audit
	1.00	
d) Other known causes		
10/23/2018 9:00		
10/23/2018 12:00	3.00	Leak checked; replaced filter and o-rings
	3.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI4

EMISSION LIMITS AND AVERAGING TIME:
4.16 lb SO2/hr - 3 hour rolling average
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): No. 2 Crude Charge Heater
2-B-3

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI176, EQUI296, STRU15

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Natural Gas
1934	1934	1934

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

	Fuel Gas	Natural Gas
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3

POLLUTANT MONITORED: **SO2 lb/hr - 3 hour rolling average**

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3

POLLUTANT MONITORED: **SO2 lb/mmbtu - 3 hour rolling average**

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3, Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): **2-B-3, Natural Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI5

EMISSION LIMITS AND AVERAGING TIME:
1.2 lb SO2/hr - 3 hr rolling avG.
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): No. 1 Crude Vacuum heater
1-B-5

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI178, STRU10

TOTAL OPERATING HOURS OF EMISSION UNIT: 1939

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 1-B-5

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb/hr, 3-hour avg)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 1-B-5

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb/mmBtu)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 1-B-5, **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI6

EMISSION LIMIT AND AVERAGE TIME:
2.83 - 3 hour rolling avg.
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Crude Charge Heater
Heater 1-B-7

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI182, EQUI183, STRU69

OPERATING HOURS OF EMISSION UNIT:
Total
1924

A. EMISSION DATA SUMMARY			B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)			1 DURATION OF CEM DOWNTIME DURING	
1	lb/hr	lb/mmbtu	SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00		Fuel Gas
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI6

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI6

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 1-B-7

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI7

EMISSION LIMITS AND AVERAGING TIME:
1.41 lb SO2/hr - 3 hour rolling avg.
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Distillate Unifiner
29-B-1, 29-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI184, STRU68

TOTAL OPERATING HOURS OF EMISSION UNIT: 1894

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 29-B-1, 29-B-2

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 29-B-1, 29-B-2

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 29-B-1, 29-B-2 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

Back to Su

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI8

EMISSION LIMITS AND AVERAGING TIME:
1.95 lb SO2/hr - 3 hr rolling average
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Naphtha Unifiner Heater
3-B-1, 3-B-2, 3-B-3

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI185, STRU19

TOTAL OPERATING HOURS OF EMISSION UNIT: 1752

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00		
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-1, 3-B-2, 3-B-3

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-1, 3-B-2, 3-B-3

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-1,2,3 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI9

EMISSION LIMITS AND AVERAGING TIME:
1.95 lb SO2/hr - 3 hour rolling average
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Platformer Charge Heater 3-B-4

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI186, STRU67

TOTAL OPERATING HOURS OF EMISSION UNIT: 1846

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-4

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-4

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-4 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI10

EMISSION LIMITS AND AVERAGING TIME:
1.68 lb SO2/hr - 3 hr rolling average
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Platformer interheater #1
3-B-7

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI187, STRU66

TOTAL OPERATING HOURS OF EMISSION UNIT: 1821

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-7

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-7

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-7 Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI11

EMISSION LIMITS AND AVERAGING TIME:
1.08 lb SO2/hr - 3 hour rolling avg.
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Platformer Interheater #2
3-B-8

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI188, STRU65

TOTAL OPERATING HOURS OF EMISSION UNIT: 1822

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-8

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-8

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-8 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI12

EMISSION LIMIT AND AVERAGE TIME:
0.76 lb SO2/hr - 3 hour rolling average
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Desulfurizer Heater
Heater 34-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI189, MR029, STRU64

TOTAL OPERATING HOURS OF EMISSION UNIT: 1959

A. EMISSION DATA SUMMARY			B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)			1 DURATION OF CEM DOWNTIME DURING	
1	lb/hr	lb/MMBtu	SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00		
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	0.00	d) Other known causes	6.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	6.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.31%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-1

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
12/14/18 14:00		
12/14/18 20:00	6.00	Communications issue.
Total	6.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI13

EMISSION LIMIT AND AVERAGE TIME:
2.62 lb SO2/hr - 3 hour rolling avg.
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Hot Oil Heater
Heater 34-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI190, EQUI191, STRU64

OPERATING HOURS OF EMISSION UNIT:
Total
1967

A. EMISSION DATA SUMMARY			B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)			1 DURATION OF CEM DOWNTIME DURING	
1	lb/hr	lb/mmbtu	SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00		
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity
Other:

REPORTING QUARTER: Fourth, 2018

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI14

EMISSION UNIT(S): Heater 32-B-1

ASSOCIATED ITEMS:

MONITOR
MFR: ABB
Model: Advance Optima Limas 11

EMISSION LIMIT AND AVERAGE TIME:
0.050 lbs/mmbtu - 365 day rolling average

EMISSION BASIS:
Consent Decree

TOTAL OPERATING HOURS
OF EMISSION UNIT: 1931

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	**365 day**	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	6.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	6.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.31%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 32-B-1 (EQUI14)

POLLUTANT MONITORED: NOx (365 day rolling avg) and O2

DATE/TIME	DURATION	CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 32-B-1 (EQUI14)

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
	0.00	
Total	0.00	
d) Other known causes		
10/24/2018 13:00		
10/24/2018 14:00	1.00	Communications error
11/7/2018 7:00		
11/7/2018 9:00	2.00	Communications error
11/15/2018 13:00		
11/15/2018 16:00	3.00	Preventive maintenance
Total	6.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI14

EMISSION LIMIT AND AVERAGE TIME:
2.97 lb SO2/hr - 3 hour rolling average
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION BASIS: SIP for SO2 NAAQS (Effective 9-10-2009)

EMISSION UNIT(S): HDH Heater
32-B-1

ASSOCIATED ITEMS:
COMG7, COMG14, EQUI163, EQUI192, STRU63

TOTAL OPERATING HOURS OF EMISSION UNIT: 1931

A. EMISSION DATA SUMMARY			B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)			1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
1	lb/hr	lb/mmbtu		Fuel Gas
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00
d) Other known causes	0.00	0.00	d) Other known causes	1.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	1.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.05%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 32-B-1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 32-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 32-B-1

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
10/24/18 13:00		
10/24/18 14:00	1.00	Communications error
Total	1.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI15

EMISSION LIMIT AND AVERAGE TIME:
1.60 lb SO2/hr - 3 hour rolling avg.
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Dehex Reboiler Heater
Heater 10-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI193, EQUI194, STRU9

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas
1984	1984

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS) 1	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other: SO2 also a surrogate for MACT Subpart UUU HAP Emissions

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Advance Limas 11 SO2 / Magnos 106 - O2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI0000000016

EMISSION LIMIT AND AVERAGE TIME: 250 ppm SO2 - 12 hour rolling average

EMISSION UNIT(S): #2 SRU/SCOT unit

EMISSION BASIS: 40 CFR 60 NSPS Subpart J

ASSOCIATED ITEMS: TREA12, COMG8, EQUI166, EQUI167, STRU81

40 CFR 63.1568 Table 29 Opt 1a MACT Subpart UUU

PROCESS UNIT DESCRIPTION: EQUI16 is a Claus Sulfur Recovery Unit with a Tail Gas Treating Unit. The train includes the SRU Incinerator. The sulfur unit is designed to process 50 LTPD.

TOTAL OPERATING HOURS OF EMISSION UNIT: 1954

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY		C. SRU BYPASS INFORMATION	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		1 DURATION OF BYPASS	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00	a) Process Problems	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00	b) Other known causes	0.00
c) Process problems	0.00	c) QA calibration	0.00	c) Unknown causes	0.00
d) Other known causes	0.00	d) Other known causes	1.00		
e) Unknown causes	0.00	e) Unknown causes	0.00	2 TOTAL DURATION (HRS)	0.00
f) Soot blowing	0.00			3 PERCENT OF TOTAL OPERATION HOURS	0.00%
g) Fuel problems	0.00				
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	1.00		
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.05%		

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: Actual monitored values are noted in this section.
During excess emission events, a value equal to 1.5x the high calibration gas concentration is used to replace any analyzer readings over that value since measured data points are not verifiable or accurate when at least 50% greater than the high calibration gas concentration.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (ppm)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (ppm, 12-hr average) and recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
10/25/2018 11:00		
10/25/2018 12:00	1.00	Communications error
Total	1.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
SRU BYPASS INFORMATION

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: Bypass (Acid gas)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Process problems		
10/1/2018		
1/1/2019		No bypasses that resulted in excess emissions.
Total	0.00	
b) Other known causes		
10/1/2018		
1/1/2019		No bypasses that resulted in excess emissions.
Total	0.00	
b) Unknown causes		
10/1/2018		
1/1/2019		No bypasses that resulted in excess emissions.
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Advance Limas 11 SO2 / Magnos 106 - O2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI16

EMISSION LIMIT AND AVERAGE TIME: 45.0 lb SO2/hr - 1 hour average; 15.0 lb SO2/hr - 3 hour rolling average

EMISSION UNIT(S): #2 SRU/SCOT unit

EMISSION BASIS: MN Rule 7009.0020 - AAQS/SIP

ASSOCIATED ITEMS: TREA12, COMG8, EQUI166, EQUI167, STRU14

TOTAL OPERATING HOURS OF EMISSION UNIT: 1954

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	1 hr	3 hr
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	1.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	1.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.05%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:

lb/hr SO2 CEM downtime same as reported for #2 SRU/SCOT (EU 019) SO2 ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 1-hr average) and ppm recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
		SO2 lb/hr downtime same as reported for #2 SRU/SCOT (EU 019) SO2 ppm
a) Monitor malfunction		
Total	0.00	See #2 SCOT ppm page for details
b) Non-monitor malfunction		
Total	0.00	See #2 SCOT ppm page for details
c) QA calibration		
Total	0.00	See #2 SCOT ppm page for details
d) Other known causes		
Total	1.00	See #2 SCOT ppm page for details
e) Unknown causes		
Total	0.00	See #2 SCOT ppm page for details

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: flow)

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI17

EMISSION LIMITS AND AVERAGING TIME:
1.70 lb SO2/hr - 3 hour rolling average
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Guard Case Reactor Heater 36-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI199, STRU62

TOTAL OPERATING HOURS OF EMISSION UNIT: 1761

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00
d) Other known causes	0.00	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-1

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-1

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-1 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI18

EMISSION LIMITS AND AVERAGING TIME:
2.10 lb SO2/hr - 3 hour rolling average
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Reactor Charge Heater
36-B-2,3,4

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI200, STRU12

TOTAL OPERATING HOURS OF EMISSION UNIT: 1865

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00
d) Other known causes	0.00	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-2,3,4

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-2,3,4

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-2,3,4 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI19

EMISSION LIMITS AND AVERAGING TIME:
0.63 lb SO2/hr - 3 hour rolling avg.
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Reactor Charge Heater
36-B-6E

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI201, STRU80

TOTAL OPERATING HOURS OF EMISSION UNIT: 1887

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6E

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6E

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-6E Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI20

EMISSION LIMITS AND AVERAGING TIME: 1.05 lb SO2/hr - 3 hour rolling average; 1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Reactor Charge Heaters 36-B-6W

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI202, STRU79

TOTAL OPERATING HOURS OF EMISSION UNIT: 1888

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6W

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6W

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6W **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: Flow)

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI21

EMISSION LIMITS AND AVERAGING TIME:
1.38 lb SO2/hr - 3 hour rolling avg.
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Reactor Charge Heater 37-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: TREA20, TREA21, COMG7, COMG8, EQUI163, EQUI203, STRU89

TOTAL OPERATING HOURS OF EMISSION UNIT: 1839

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-1

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-1

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-1 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

Back to Su

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: ____)

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR: ____

EMISSION SUBJECT ITEM: EQUI26

EMISSION LIMITS AND AVERAGING TIME: 0.78 lb SO2/hr - 3 hour rolling avg.; 1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Product Stripper Reboiler 37-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: TREA22, TREA23, COMG7, COMG8, EQUI163, EQUI204, STRU88

TOTAL OPERATING HOURS OF EMISSION UNIT: 1844

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu		
a) Startup/Shutdown	0.00	0.00	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: ____

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE: ____

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-2

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-2

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-2 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE#: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Flow

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: COM0000000026, , EQUI24

EMISSION LIMIT AND AVERAGE TIME:
3.48 lb SO2/hr - 3 hour rolling average
1.75 lb SO2/mmbtu - 3 hour rolling avg.

EMISSION UNIT(S): Hydrogen Plant Heaters
38-B-1, 38-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: TREA16, TREA11, EQUI24, EQUI163, EQUI208, EQUI205, EQUI162, STRU87

OPERATING HOURS OF EMISSION UNIT:

Total	Nat Gas	PSA Gas
2079	2079	1994

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS)

1	lb/mmbtu	lb/hr
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

	Nat Gas	PSA Gas
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: Nat Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: PSA Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: (TOC)

REPORTING QUARTER: Fourth, 2018

MONITOR
MODEL: Polytron IR Ex HC
MFR: Drager, Inc.

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME:
10 mg TOC/liter of gasoline loaded (6 hour avg)
0.74% - CEM limit established by stack test as surrogate for 10 mg/L

EMISSION SUBJECT ITEM: EQUI0000000028

EMISSION UNIT(S): Light oil loadrack Vapor Recovery Unit

EMISSION BASIS:
40 CFR 63.422(b) NESHAP Subpart CC

ASSOCIATED ITEMS: TREA18, TREA25, EQUI168, STRU31, STRU016

TOTAL OPERATING HOURS OF EMISSION UNIT: 2076

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%
FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.			

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack VRU

POLLUTANT MONITORED: TOC

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack VRU

POLLUTANT MONITORED: TOC

DATE/TIME	TOTAL	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Temperature

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Thermocouple

FACILITY: St. Paul Park Refining Co. LLC

MFR: NA

EMISSION SUBJECT ITEM: COM0000000028
Unit Startup - 8/6/08

EMISSION LIMIT AND AVERAGE TIME: > 215°F - 3 hour rolling average

EMISSION BASIS: Title V Permit

EMISSION UNIT(S): Light oil loadrack
Permanent Vapor Combustor Unit (PVCU)

ASSOCIATED ITEMS: TREA26, EQUI28, EQUI41, STRU32

TOTAL OPERATING HOURS OF EMISSION UNIT: 192

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack Process Vapor Burner (P

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN.TEMPERATURE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack - PVB

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

AQD FILE # #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) (NOx) CO CO2 O2 TRS H2S HCL Opacity Other

Other: This report addresses Flare SARA reportable emissions, pilot monitoring, pilot flame outages, and SO2 monitoring.

REPORTING QUARTER: Fourth, 2018

MONITOR

MODEL SOLA II Dual Range

FACILITY: St. Paul Park Refining Co. LLC

MFR: Thermo Scientific

EMISSION LIMIT AND AVERAGE TIME:

EMISSION SUBJECT ITEM: TREA13

EMISSION UNIT(S): TREA13 Refinery flare stack

EMISSION BASIS: 40 CFR 63 NESHAP Subpart CC, Subpart Ja

ASSOCIATED ITEMS: FUGI73

TOTAL OPERATING HOURS OF EMISSION UNIT: 2208

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY (Scanner)		C. CEM PERFORMANCE SUMMARY (SO2)		D. CEM PERFORMANCE SUMMARY (Pilots)	
1 DURATION OF SARA REPORTABLE EMISSIONS (HRS)	SO2	NOx	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		DURATION OF PILOT DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00	a) Monitor malfunction	0.00	a) Pilot malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunctior	0.00	b) Non-monitor malfunction	0.00	b) Other known causes	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00	c) QA calibration	3.00	c) Unknown causes	0.00
d) Other known causes	0.00	0.00	d) Other known causes	0.00	d) Other known causes	108.00		
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00	e) Unknown causes	0.00	TOTAL DURATION (HRS)	0.00
f) Soot blowing	0.00	0.00					PERCENT OF TOTAL	
g) Fuel problems	0.00	0.00	2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	111.00	PILOT DOWNTIME	0.00%
2 TOTAL DURATION (HRS)	0.00	0.00	3 PERCENT OF TOTAL		3 PERCENT OF TOTAL			
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	CEM DOWNTIME	0.00%	CEM DOWNTIME	5.03%		

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of SARA Reportable Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

SARA Reportable Emissions Report - SO2 (i.e., > 500 lbs)

REPORTING QUARTER: Fourth, 2018

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	APPROX. SO2 EMITTED (LBS)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			
Total	0.00		

SARA Reportable Emissions Report - NO2 (i.e., > 1000 lbs)

REPORTING QUARTER: Fourth, 2018

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: NA (NOx is calculated)

DATE/TIME	TOTAL DURATION (HRS)	APPROX. NO2 EMITTED (LBS)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
c) QA calibration		
11/20/2018 13:00		
11/20/2018 16:00	3.00	Quarterly calibration gas audit.
Total	3.00	
d) Other known causes		
10/9/2018 7:00		
10/9/2018 9:00	2.00	Preventive maintenance
10/14/2018 15:00		
10/14/2018 17:00	2.00	Preventive maintenance
11/5/2018 7:00		
11/5/2018 8:00	1.00	Preventive maintenance
12/6/2018 11:00		
12/6/2018 13:00	2.00	Preventive maintenance
12/11/2018 7:00		
12/11/2018 9:00	2.00	Troubleshooting
12/12/2018 10:00		
12/12/2018 11:00	1.00	Troubleshooting
12/15/2018 8:00		
12/15/2018 11:00	3.00	Preventive maintenance
12/17/2018 10:00		
12/17/2018 14:00	4.00	Preventive maintenance
12/18/2018 7:00		
12/18/2018 17:00	10.00	Troubleshooting
12/19/2018 8:00		
12/19/2018 10:00	2.00	Troubleshooting
12/19/2018 11:00		
12/22/2018 15:00	76.00	Troubleshooting
12/27/2018 8:00		
12/27/2018 11:00	3.00	Troubleshooting
Total	108.00	
e) Unknown causes		
Total	0.00	

FLARE SCANNER
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: Flame Presence (Non-Pollutant)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

FLARE PILOT
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018

AQD FILE # #0203 (AI ID 447)

EMISSION UNIT(S): TREA0000000013

POLLUTANT MONITORED: Flame Presence (Non-Pollutant)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Pilot malfunction		
10/1/2018		
1/1/2019		
Total	0.00	
b) Other known causes		
10/1/2018		
1/1/2019		
Total	0.00	
c) Unknown causes		
10/1/2018		
1/1/2019		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS (H2S) HCL Opacity

Other: (Temp)

REPORTING QUARTER: Fourth, 2018

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: TREA5

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer (SBC Vent Gas / TO Temperature)

ASSOCIATED ITEMS: EQUI209, STRU22, SV065

MONITOR MODEL: 002A GC

MFR: ABB

EMISSION LIMIT AND AVERAGE TIME:
150 ppm H2S - 365 day rolling average
> 1400 DEGF - 3 hour rolling average

EMISSION BASIS:
40 CFR 52.21
MN Rule 7007.0800, Subp. 2

TOTAL OPERATING HOURS OF EMISSION UNIT: 2202

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	H2S	Temperature
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	H2S	Temperature
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	6.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	6.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.27%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	**MAX. CONC. (150 ppm, 365 day average)**	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	**MIN. TEMP. (°F, 3-hr average)**	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
10/4/2018 11:00		
10/4/2018 13:00	2.00	Communications error
10/5/2018 9:00		
10/5/2018 10:00	1.00	Communications error
10/12/2018 13:00		
10/12/2018 16:00	3.00	Preventative maintenance
Total	6.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Temp

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Thermocouple

MFR:

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: COMG13

EMISSION LIMIT AND AVERAGE TIME: > 1400 DEGF - 3 hour rolling average

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer (N_2 Vent Gas / TO Temperature)

EMISSION BASIS: 40 CFR 61.349(a)(2) MN Rule 7011.9930, Sub.E

ASSOCIATED ITEMS: TREA5, EQUI209, STRU22, SV065

TOTAL OPERATING HOURS OF EMISSION UNIT: 2202

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	**Temperature**	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	**Temperature**
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: **Temperature**

DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: **Temperature**

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other: SO2 also a surrogate for MACT Subpart UUU HAP Emissions

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Advance Optima, Limas 11, NDUV

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI33

EMISSION LIMIT AND AVERAGE TIME: 250 ppmd, O2 free - 12 hour rolling average

EMISSION UNIT(S): #3 SRU/SCOT unit

Unit Startup - 11/16/2004, CEM Startup 11/16/04

EMISSION BASIS: 40 CFR 60 NSPS Subpart J

40 CFR 63.1568 Table 29 Opt 1a MACT Subpart UUU

ASSOCIATED ITEMS: TREA4, COMG7, EQUI163, EQUI296, EQUI210, EQUI211, STRU6

PROCESS UNIT DESCRIPTION: EU0083 is a 4-Stage Claus Sulfur Recovery Unit with a tail Gas Treating Unit. The train includes the SRU incinerator. The sulfur unit is designed to process 50 LTPD.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2008

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY		C. SRU BYPASS INFORMATION	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		1 DURATION OF BYPASS	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00	a) Process Problems	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00	b) Other known causes	0.00
c) Process problems	0.00	c) QA calibration	1.00	c) Unknown causes	0.00
d) Other known causes	0.00	d) Other known causes	10.00		
e) Unknown causes	0.00	e) Unknown causes	0.00	2 TOTAL DURATION (HRS)	0.00
f) Soot blowing	0.00			3 PERCENT OF TOTAL OPERATION HOURS	0.00%
g) Fuel problems	0.00				
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	11.00		
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.55%		

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: Actual monitored values are noted in this section.

During excess emission events, a value equal to 1.5 times the high calibration gas concentration is used to replace any analyzer readings over that value since measured data points are not verifiable or accurate when at least 50% greater than the high calibration gas concentration.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (ppm)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 12-hr average) Actual	Recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown				
10/1/2018				
1/1/2019				No excess emissions.
Total	0.00			
b) Control equipment				
10/1/2018				
1/1/2019				No excess emissions.
Total	0.00			
c) Process problems				
10/1/2018				
1/1/2019				No excess emissions.
Total	0.00			
d) Other known causes				
10/1/2018				
1/1/2019				No excess emissions.
Total	0.00			
e) Unknown causes				
10/1/2018				
1/1/2019				No excess emissions.
Total	0.00			
f) Soot blowing				
10/1/2018				
1/1/2019				No excess emissions.
Total	0.00			
g) Fuel problems				
10/1/2018				
1/1/2019				No excess emissions.
Total	0.00			

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
10/25/2018 13:00		
10/25/2018 14:00	1.00	Quarterly audit
Total	1.00	
d) Other known causes		
10/22/2018 10:00		
10/22/2018 11:00	1.00	Low flow to analyzer; cleaned
11/5/2018 16:00		
11/5/2018 17:00	1.00	Inspection of impinger and tubing.
11/12/2018 11:00		
11/12/2018 12:00	1.00	Testing on analyzer.
11/20/2018 13:00		
11/20/2018 15:00	2.00	Preventive maintenance.
11/29/2018 3:00		
11/29/2018 8:00	5.00	Preventive maintenance.
Total	10.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
SRU Bypass Information

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: Bypass (Acid gas)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Process problems		
10/1/2018		
1/1/2019		No bypasses that resulted in excess emissions.
Total	0.00	
b) Other known causes		
10/1/2018		
1/1/2019		No bypasses that resulted in excess emissions.
Total	0.00	
b) Unknown causes		
10/1/2018		
1/1/2019		No bypasses that resulted in excess emissions.
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity
Other:

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Advance Optima, Limas 11, NDUV

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI33

EMISSION LIMIT AND AVERAGE TIME:
45.0 lb SO2/hr - 1 hour average
15.0 lb SO2/hr - 3 hour rolling average

EMISSION UNIT(S): #3 SRU/SCOT unit
Unit Startup - 11/16/2004

EMISSION BASIS: MN Rule 7009.0020 - AAQS/SIP

ASSOCIATED ITEMS: TREA4, COMG7, EQUI163, EQUI296, EQUI210, EQUI211, STRU6

TOTAL OPERATING HOURS OF EMISSION UNIT: 2008

A. EMISSION DATA SUMMARY

	1 hr	3-hr
1 DURATION OF EXCESS EMISSIONS (HRS)		
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	1.00
d) Other known causes	10.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	11.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.55%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
#3 SRU/SCOT lb SO2/hr CEM downtime is the same as reported for #3 SRU/SCOT SO2 ppm.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr) - 45 lb/hr, 1-hr average

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 1-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr) - 15 lb/hr, 3-hr average

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
	NOTE:	**SO2 lb/hr downtime same as reported for #3 SRU/SCOT SO2 ppm**
a) Monitor malfunction		
Total	0.00	See #3 SCOT ppm page for details
b) Non-monitor malfunction		
Total	0.00	See #3 SCOT ppm page for details
c) QA calibration		
Total	1.00	See #3 SCOT ppm page for details
d) Other known causes		
Total	10.00	See #3 SCOT ppm page for details
e) Unknown causes		
Total	0.00	See #3 SCOT ppm page for details

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: (Temperature)

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: NA

FACILITY: St. Paul Park Refining Co. LLC

MFR: NA

EMISSION SUBJECT ITEM: EU 088
Unit Startup - 10/20/2008

EMISSION LIMIT AND AVERAGE TIME: > 550 Deg F - 3 hour rolling average

EMISSION UNIT(S): NP VEPR Phase 1

EMISSION BASIS: Title V Permit
MN R. 7007.0800

ASSOCIATED ITEMS: TREA10, TREA7, STRU25

TOTAL OPERATING HOURS OF EMISSION UNIT: 0

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 1

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 1

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: (Temperature)

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: NA

FACILITY: St. Paul Park Refining Co. LLC

MFR: NA

EMISSION SUBJECT ITEM: EU 089

EMISSION LIMIT AND AVERAGE TIME: > 550 Deg F - 3 hour rolling average

EMISSION UNIT(S): NP VEPR Phase 2

EMISSION BASIS: Title V Permit
MN R. 7007.0800

ASSOCIATED ITEMS: TREA6, TREA8, STRU29

TOTAL OPERATING HOURS OF EMISSION UNIT: 0

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 2

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 2

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity
Other:

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Syscon/Uras 26 - NOx; Magnos 206 - O_2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI42

EMISSION LIMIT AND AVERAGE TIME: 0.20 lb/mmbtu - 30 Day rolling average

EMISSION UNIT(S): Boiler 7; Boiler 16-B-7

EMISSION BASIS: NSPS Db

ASSOCIATED ITEMS: COMG27 (Boilers 7&8), EQUI0212, EQUI214, STRU44

OPERATING HOURS OF EMISSION UNIT: 2143

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)	lb/mmbtu (30 Day)	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
1 a) Startup/Shutdown	0.00		
b) Control equipment	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	c) QA calibration	1.00
e) Unknown causes	0.00	d) Other known causes	49.00
f) Soot blowing	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	50.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	2.33%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Boiler 16-B-7

POLLUTANT MONITORED: NOx (lbs/mmbtu)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-7

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
10/22/18 14:00		
10/22/18 15:00	1.00	Quarterly Audit
Total	1.00	
d) Other known causes		
10/3/2018 14:00		
10/3/2018 16:00	2.00	Communications error
10/4/2018 10:00		
10/4/2018 13:00	3.00	Communications error
10/5/2018 9:00		
10/5/2018 14:00	5.00	Communications error
10/5/2018 15:00		
10/6/2018 23:00	32.00	Communications error
10/8/2018 9:00		
10/8/2018 12:00	3.00	Electrical cutover, analyzer powered down
10/8/2018 13:00		
10/8/2018 15:00	2.00	Communications error
11/7/2018 13:00		
11/7/2018 15:00	2.00	Preventative maintenance
Total	49.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: FLOW

REPORTING QUARTER: Fourth, 2018

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI42

EMISSION UNIT(S): Boiler 7
Boiler 16-B-7

ASSOCIATED ITEMS: COMG7, COMG27, EQUI163, STRU44

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

MFR:

EMISSION LIMIT AND AVERAGE TIME: 0.025 lb SO2/mmbtu - 3 hour rolling average

EMISSION BASIS: SIP for SO2 NAAQS

OPERATING HOURS OF EMISSION UNIT: 2143

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING	
1	lb/mmbtu	SOURCE OPERATION (HRS)	
			Fuel Gas
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	34.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	34.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	1.59%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI44

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 8-B-1 (EQUI44)

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx (CO) CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2018

MONITOR MODEL: Syscon/Uras 26 - CO; Magnos 206 - O_2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: COMG27

EMISSION LIMIT AND AVERAGE TIME: 95 Tons Per Year - 12 month rolling sum (for Boilers 7 & 8 combined as GP 032)

EMISSION UNIT(S): COMG27 Boilers 16-B-7 and 16-B-8

EMISSION BASIS: TV Air Permit - Limit to avoid NSR 40 CFR 52.21, Minn.R.7007.3000

ASSOCIATED ITEMS: EQUI42, EQUI43, EQUI213, EQUI214, EQUI216, EQUI217, STRU44, STRU45

OPERATING HOURS OF EMISSION UNIT:	Boiler 7	Boiler 8
	2143	2195

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS) 1	Ton/Year
a) Startup/Shutdown	0.00
b) Control equipment	0.00
c) Process problems	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
f) Soot blowing	0.00
g) Fuel problems	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Boiler 7	Boiler 8
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	1.00	1.00
d) Other known causes	49.00	49.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	50.00	50.00
3 PERCENT OF TOTAL CEM DOWNTIME	2.33%	2.28%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: CEMS downtime for the GP 032 combined emission limit is reported if individually or for both CEMS for Boiler 7 and Boiler 8 are down. These pages are applicable only for the combined CO limit.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): GP 032 - 16-B-7 and 16-B-8

POLLUTANT MONITORED: CO Ton/Year

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-7

POLLUTANT MONITORED: CO

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
10/22/18 14:00		
10/22/18 15:00	1.00	Quarterly Audit
Total	1.00	
d) Other known causes		
10/3/2018 14:00		
10/3/2018 16:00	2.00	Communications error
10/4/2018 10:00		
10/4/2018 13:00	3.00	Communications error
10/5/2018 9:00		
10/5/2018 14:00	5.00	Communications error
10/5/2018 15:00		
10/6/2018 23:00	32.00	Communications error
10/8/2018 9:00		
10/8/2018 12:00	3.00	Electrical cutover, analyzer powered down
10/8/2018 13:00		
10/8/2018 15:00	2.00	Communications error
11/7/2018 13:00		
11/7/2018 15:00	2.00	Preventative maintenance
Total	49.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-8

POLLUTANT MONITORED: CO

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
10/22/18 14:00		
10/22/18 15:00	1.00	Quarterly Audit
Total	1.00	
d) Other known causes		
10/3/2018 14:00		
10/3/2018 16:00	2.00	Communications error
10/4/2018 10:00		
10/4/2018 13:00	3.00	Communications error
10/5/2018 9:00		
10/5/2018 14:00	5.00	Communications error
10/5/2018 15:00		
10/6/2018 23:00	32.00	Communications error
10/8/2018 9:00		
10/8/2018 12:00	3.00	Electrical cutover, analyzer powered down
10/8/2018 13:00		
10/8/2018 15:00	2.00	Communications error
11/7/2018 13:00		
11/7/2018 15:00	2.00	Preventative maintenance
Total	49.00	
e) Unknown causes		
Total	0.00	

ME REPORT

REPORTING QUARTER: Fourth, 2018

EMISSION UNIT(S): Temporary Flare (During Turnaround) AQD FILE #: #0203 (AI ID 447)

POLLUTANT MONITORED: Flame Presence (Non-Pollutant)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Pilot malfunction		
10/1/2018		
1/1/2019		
Total	0.00	
b) Other known causes		
10/1/2018		
1/1/2019		
Total	0.00	
c) Unknown causes		
10/1/2018		
1/1/2019		
Total	0.00	

AQD FILE #:

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS (H2S) HCL Opacity

Other: This report addresses Flare H2S emissions.

REPORTING QUARTER: Fourth, 2018

MONITOR
MODEL: 8610C
MFR: SRI Instruments

FACILITY: St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME: 162 ppm (3-hour rolling average)

EMISSION SUBJECT ITEM: Temporary Flare

EMISSION UNIT(S): Temporary Flare Stack

EMISSION BASIS: 40 CFR 63 NESHAP Subpart Ja

ASSOCIATED ITEMS: FUGI73

TOTAL OPERATING HOURS OF EMISSION UNIT: 113

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY		
1 DURATION OF EXCESS EMISSIONS EMISSIONS (HRS)	H2S		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		
a) Startup/Shutdown	0.00		a) Monitor malfunction	0.00	
b) Control equipment	0.00		b) Non-monitor malfunction	0.00	
c) Process problems	0.00		c) QA calibration	0.00	
d) Other known causes	0.00		d) Other known causes	18.00	
e) Unknown causes	2.00		e) Unknown causes	0.00	
f) Soot blowing	0.00				
g) Fuel problems	0.00		2 TOTAL DURATION (HRS)	18.00	
2 TOTAL DURATION (HRS)	2.00		3 PERCENT OF TOTAL CEM DOWNTIME	15.93%	
3 PERCENT OF TOTAL EXCESS EMISSIONS	1.77%				

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of SARA Reportable Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2018

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Temporary Flare Stack

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	MAX CONCENTRATION (ppm, 3-hour rolling avg.)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019			
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019			
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019			
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019			
Total	0.00		
e) Unknown causes			
10/4/2018 16:00			
10/4/2018 18:00	2	259	See the incident description in the report narrative.
10/5/2018 13:00			
10/5/2018 23:00	10	490	See the incident description in the report narrative.
Total	2.00		
f) Soot blowing			
10/1/2018			
1/1/2019			
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019			
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Temporary Flare Stack

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	ORRECTIVE ACTION
c) QA calibration		
Total	0.00	
d) Other known causes		
10/1/2018 0:00		
10/1/2018 8:00	8.00	Analzyer downtime due to heavy steaming.
10/2/2018 7:00		
10/2/2018 8:00	1.00	Morning calibration and equipment preparation.
10/3/2018 4:00		
10/3/2018 8:00	4.00	Morning calibration and equipment preparation.
10/4/2018 7:00		
10/4/2018 8:00	1.00	Morning calibration and equipment preparation.
10/5/2018 7:00		
10/5/2018 9:00	2.00	Morning calibration and equipment preparation.
10/5/2018 14:00		
10/5/2018 16:00	2.00	Calibration and equipment checks.
Total	18.00	
e) Unknown causes		
Total	0.00	

Appendix A

Quarterly CGA Results

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-13	**Calender Quarter:**	FOURTH
Unit:	Boiler #7	**Analyzer Span:**	0 - 25%
Component:	OXYGEN (O_2)	**Serial Number:**	3.347965.0
Date:	Monday, October 22, 2018	**Technician:**	BRYAN WINN
Start Time:	13:25	**End Time:**	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1500
High Range	1410

Cylinder Pressure (End)	
Low Range	1460
High Range	1395

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC151353	SG9152543BAL
Cylinder Certification Date:	8/9/2011	8/9/2011
Cylinder Expiration Date:	8/9/2019	8/9/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.038	10.110

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**4.28**	**8.59**
Range of Allowance (±15%) High	**5.79**	**11.63**
Test Run #1	**5.00**	**10.08**
Test Run #2	**4.99**	**10.08**
Test Run #3	**4.99**	**10.08**
Average Result (Cm)	**4.99**	**10.08**
Accuracy (%)	**-0.88**	**-0.28**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-14	**Calender Quarter:**	FOURTH
Unit:	Boiler #7	**Analyzer Span:**	0 - 500 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.347963.0
Date:	Monday, October 22, 2018	**Technician:**	BRYAN WINN
Start Time:	13:25	**End Time:**	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1360
High Range	1550

Cylinder Pressure (End)	
Low Range	1350
High Range	1540

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC158095	CC403016
Cylinder Certification Date:	8/3/2011	7/9/2013
Cylinder Expiration Date:	8/3/2019	7/9/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	129.2	277.7

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**109.82**	**236.05**
Range of Allowance (±15%) High	**148.58**	**319.36**
Test Run #1	**126.03**	**276.51**
Test Run #2	**126.33**	**276.70**
Test Run #3	**126.13**	**276.58**
Average Result (Cm)	**126.16**	**276.60**
Accuracy (%)	**-2.35**	**-0.40**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-15	**Calender Quarter:**	FOURTH
Unit:	Boiler #7	**Analyzer Span:**	0 - 1000 PPM
Component:	CARBON MONOXIDE (CO)	**Serial Number:**	3.347963.0
Date:	Monday, October 22, 2018	**Technician:**	BRYAN WINN
Start Time:	13:25	**End Time:**	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1500
High Range	1410

Cylinder Pressure (End)	
Low Range	1460
High Range	1395

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC151353	SG9152543BAL
Cylinder Certification Date:	8/9/2011	8/9/2011
Cylinder Expiration Date:	8/9/2019	8/9/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	259.00	573.90

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**220.15**	**487.82**
Range of Allowance (±15%) High	**297.85**	**659.99**
Test Run #1	**260.76**	**571.35**
Test Run #2	**260.79**	**571.42**
Test Run #3	**260.14**	**571.07**
Average Result (Cm)	**260.56**	**571.28**
Accuracy (%)	**0.60**	**-0.46**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-18	**Calender Quarter:**	FOURTH
Unit:	Boiler #8	**Analyzer Span:**	0 - 25%
Component:	OXYGEN (O_2)	**Serial Number:**	3.347966.0
Date:	Monday, October 22, 2018	**Technician:**	BRYAN WINN
Start Time:	13:25	**End Time:**	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1500
High Range	1410

Cylinder Pressure (End)	
Low Range	1460
High Range	1395

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC151353	SG9152543BAL
Cylinder Certification Date:	8/9/2011	8/9/2011
Cylinder Expiration Date:	8/9/2019	8/9/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.038	10.110

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**4.28**	**8.59**
Range of Allowance (±15%) High	**5.79**	**11.63**
Test Run #1	**4.96**	**10.05**
Test Run #2	**4.96**	**10.05**
Test Run #3	**4.96**	**10.04**
Average Result (Cm)	**4.96**	**10.05**
Accuracy (%)	**-1.64**	**-0.63**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-19	**Calender Quarter:**	FOURTH
Unit:	Boiler #8	**Analyzer Span:**	0 - 500 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.347964.0
Date:	Monday, October 22, 2018	**Technician:**	BRYAN WINN
Start Time:	13:25	**End Time:**	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1500
High Range	1410

Cylinder Pressure (End)	
Low Range	1460
High Range	1395

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC158095	CC403016
Cylinder Certification Date:	8/3/2011	7/9/2013
Cylinder Expiration Date:	8/3/2019	7/9/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	129.2	277.7

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**109.82**	**236.05**
Range of Allowance (±15%) High	**148.58**	**319.36**
Test Run #1	**126.02**	**277.03**
Test Run #2	**126.17**	**276.89**
Test Run #3	**126.41**	**277.24**
Average Result (Cm)	**126.20**	**277.05**
Accuracy (%)	**-2.32**	**-0.23**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-20	**Calender Quarter:**	FOURTH
Unit:	Boiler #8	**Analyzer Span:**	0 - 1000 PPM
Component:	CARBON MONOXIDE (CO)	**Serial Number:**	3.347964.0
Date:	Monday, October 22, 2018	**Technician:**	BRYAN WINN
Start Time:	13:25	**End Time:**	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1500
High Range	1410

Cylinder Pressure (End)	
Low Range	1460
High Range	1395

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC151353	SG9152543BAL
Cylinder Certification Date:	8/9/2011	8/9/2011
Cylinder Expiration Date:	8/9/2019	8/9/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	259.00	573.90

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**220.15**	**487.82**
Range of Allowance (±15%) High	**297.85**	**659.99**
Test Run #1	**260.23**	**570.33**
Test Run #2	**260.15**	**570.24**
Test Run #3	**260.23**	**570.46**
Average Result (Cm)	**260.20**	**570.35**
Accuracy (%)	**0.46**	**-0.62**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	2-AI-103	**Calender Quarter:**	FOURTH
Unit:	#2 CRUDE	**Analyzer Span:**	0 - 10%
Component:	OXYGEN (O_2)	**Serial Number:**	3.246580.2
Date:	Monday, October 22, 2018	**Technician:**	JACOB PAZUREK
Start Time:	13:45	**End Time:**	15:15

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1500
High Range	1420

Cylinder Pressure (End)	
Low Range	1495
High Range	1410

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	SG9169569BAL	CC174008
Cylinder Certification Date:	7/1/2013	2/17/2011
Cylinder Expiration Date:	7/1/2021	2/17/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.002	9.998

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**4.25**	**8.50**
Range of Allowance (±15%) High	**5.75**	**11.50**
Test Run #1	**4.98**	**9.94**
Test Run #2	**4.98**	**9.94**
Test Run #3	**4.98**	**9.93**
Average Result (Cm)	**4.98**	**9.93**
Accuracy (%)	**-0.49**	**-0.64**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	2-AI-104	**Calender Quarter:**	FOURTH
Unit:	#2 CRUDE	**Analyzer Span:**	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.246579.2
Date:	Monday, October 22, 2018	**Technician:**	JACOB PAZUREK
Start Time:	13:45	**End Time:**	15:15

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1560
High Range	1800

Cylinder Pressure (End)	
Low Range	1550
High Range	1795

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC268503	CC18672
Cylinder Certification Date:	8/15/2016	5/2/2014
Cylinder Expiration Date:	8/15/2019	5/2/2022
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	25.0	57.3

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**21.26**	**48.72**
Range of Allowance (±15%) High	**28.76**	**65.92**
Test Run #1	**24.62**	**55.76**
Test Run #2	**24.48**	**55.66**
Test Run #3	**24.66**	**55.65**
Average Result (Cm)	**24.58**	**55.69**
Accuracy (%)	**-1.70**	**-2.84**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	7-AI-205	**Calender Quarter:**	FOURTH
Unit:	VRU	**Analyzer Span:**	0 - 5%
Component:	PROPANE (C_3H_8)	**Serial Number:**	ERFH-0934
Date:	Thursday, October 25, 2018	**Technician:**	BRYAN WINN
Start Time:	13:38	**End Time:**	13:59

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	880
High Range	600

Cylinder Pressure (End)	
Low Range	700
High Range	550

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	SG9160857BAL	LCCOSA10333
Cylinder Certification Date:	3/24/2014	6/22/2011
Cylinder Expiration Date:	3/24/2022	6/22/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	1.36	2.63

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**1.16**	**2.23**
Range of Allowance (±15%) High	**1.57**	**3.02**
Test Run #1	**1.31**	**2.53**
Test Run #2	**1.31**	**2.50**
Test Run #3	**1.31**	**2.50**
Average Result (Cm)	**1.31**	**2.51**
Accuracy (%)	**-3.96**	**-4.49**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	42-AI-4	**Calender Quarter:**	FOURTH
Unit:	#3 SRU	**Analyzer Span:**	0 - 25%
Component:	OXYGEN (O_2)	**Serial Number:**	3.245244.3
Date:	Thursday, October 25, 2018	**Technician:**	JACOB PAZUREK
Start Time:	10:14	**End Time:**	11:37

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1830
High Range	1600

Cylinder Pressure (End)	
Low Range	1820
High Range	1590

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC247661	CC335268
Cylinder Certification Date:	3/27/2014	2/11/2011
Cylinder Expiration Date:	3/27/2022	2/11/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	4.967	9.521

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**4.22**	**8.09**
Range of Allowance (±15%) High	**5.71**	**10.95**
Test Run #1	**4.97**	**9.52**
Test Run #2	**4.97**	**9.51**
Test Run #3	**4.96**	**9.51**
Average Result (Cm)	**4.97**	**9.51**
Accuracy (%)	**0.00**	**-0.07**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	42-AI-3	**Calender Quarter:**	FOURTH
Unit:	#3 SRU	**Analyzer Span:**	0 - 500 PPM
Component:	SULFUR DIOXIDE (SO_2)	**Serial Number:**	3.245249.3
Date:	Thursday, October 25, 2018	**Technician:**	JACOB PAZUREK
Start Time:	13:14	**End Time:**	14:29

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1595
High Range	1800

Cylinder Pressure (End)	
Low Range	1590
High Range	1790

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC175894	CC357324
Cylinder Certification Date:	3/3/2011	3/31/2014
Cylinder Expiration Date:	3/3/2019	3/31/2022
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	128.5	280.1

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**109.23**	**238.09**
Range of Allowance (±15%) High	**147.78**	**322.12**
Test Run #1	**126.63**	**279.24**
Test Run #2	**127.30**	**279.22**
Test Run #3	**127.78**	**278.99**
Average Result (Cm)	**127.23**	**279.15**
Accuracy (%)	**-0.99**	**-0.34**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	31-AI-1A	**Calender Quarter:**	FOURTH
Unit:	#2 SRU	**Analyzer Span:**	0 - 25%
Component:	OXYGEN (O_2)	**Serial Number:**	C149549
Date:	Thursday, October 25, 2018	**Technician:**	JACOB PAZUREK
Start Time:	10:24	**End Time:**	11:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1050
High Range	900

Cylinder Pressure (End)	
Low Range	1045
High Range	895

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC37936	CC175979
Cylinder Certification Date:	7/5/2011	7/7/2011
Cylinder Expiration Date:	7/5/2019	7/7/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.122	10.070

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**4.35**	**8.56**
Range of Allowance (±15%) High	**5.89**	**11.58**
Test Run #1	**5.13**	**10.12**
Test Run #2	**5.12**	**10.10**
Test Run #3	**5.12**	**10.10**
Average Result (Cm)	**5.12**	**10.11**
Accuracy (%)	**0.03**	**0.37**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	31-AI-1B	**Calender Quarter:**	FOURTH
Unit:	#2 SRU	**Analyzer Span:**	0 - 500 PPM
Component:	SULFUR DIOXIDE (SO_2)	**Serial Number:**	6981
Date:	Thursday, October 25, 2018	**Technician:**	JACOB PAZUREK
Start Time:	10:24	**End Time:**	11:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1050
High Range	900

Cylinder Pressure (End)	
Low Range	1045
High Range	895

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC37936	CC175979
Cylinder Certification Date:	7/5/2011	7/7/2011
Cylinder Expiration Date:	7/5/2019	7/7/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	127.000	279.500

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**107.95**	**237.58**
Range of Allowance (±15%) High	**146.05**	**321.43**
Test Run #1	**127.21**	**282.70**
Test Run #2	**127.26**	**282.32**
Test Run #3	**128.72**	**283.03**
Average Result (Cm)	**127.73**	**282.68**
Accuracy (%)	**0.57**	**1.14**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Opacity Audit

Saint Paul Park, MN

Tag #:	8-AI-3A	**Filter Certification Date:**	May 15, 2018
Unit:	FCC	***Note: Cert. date must be no later than 6 months of test***	
Date:	Monday, October 29, 2018	**Instrument Serial No:**	440-A-6000044023-B21/423
Technician:	BRYAN WINN	**Monitor Pathlength**	60.125"
Start Time:	13:44	**Outlet Pathlength:**	60.125"
End Time:	15:08	**Pathlength Corrected:**	No

Calibrated Neutral Density Filter Values

Actual Optical Density Filter Values	
Low Range	10.65
Mid Range	19.68
High Range	34.42

Adjusted Optical Density Filter Values	
Low Range	N/A
Mid Range	N/A
High Range	N/A

Opacity Audit Readings

Run Number	Range	Calibration Filter (%Ca)	Instrument Reading (%Cm)	Arithmetic Values (Ca - Cm)		
				Low	Mid	High
1-1	Low	10.65	12.31	**-1.66**		
1-2	Mid	19.68	20.45		**-0.77**	
1-3	High	34.42	35.63			**-1.21**
2-1	Low	10.65	12.34	**-1.69**		
2-2	Mid	19.68	20.74		**-1.06**	
2-3	High	34.42	35.74			**-1.32**
3-1	Low	10.65	12.22	**-1.57**		
3-2	Mid	19.68	20.54		**-0.86**	
3-3	High	34.42	35.62			**-1.20**
4-1	Low	10.65	12.51	**-1.86**		
4-2	Mid	19.68	20.74		**-1.06**	
4-3	High	34.42	35.74			**-1.32**
5-1	Low	10.65	12.34	**-1.69**		
5-2	Mid	19.68	20.75		**-1.07**	
5-3	High	34.42	35.74			**-1.32**

Opacity Audit Results

	Low	Mid	High
Arithmetic Mean	**-1.69**	**-0.96**	**-1.27**
Standard Deviation	**0.11**	**0.14**	**0.06**
Confidence Coefficient	**0.13**	**0.17**	**0.08**
Calibration Error (%)	**1.82**	**1.14**	**1.35**
Allowable Calibration Error (%)	**≤ 3%**	**≤ 3%**	**≤ 3%**
Test Results			

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from Saint Paul Park Refining Company (SPPRC) Title V Permit and QA/QC Program per Minnesota State Rule 7017 Subpart (1).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	08-AI-0030B	**Calender Quarter:**	FOURTH
Unit:	8-B-1	**Analyzer Span:**	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.359841-2
Date:	Thursday, November 1, 2018	**Technician:**	BRYAN WINN
Start Time:	10:02	**End Time:**	11:19

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1870
High Range	1390

Cylinder Pressure (End)	
Low Range	1840
High Range	1330

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC323462	XC024745B
Cylinder Certification Date:	3/28/2016	2/21/2011
Cylinder Expiration Date:	3/28/2019	2/21/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	25.34	54.45

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**21.54**	**46.28**
Range of Allowance (±15%) High	**29.14**	**62.62**
Test Run #1	**24.47**	**53.84**
Test Run #2	**24.69**	**53.83**
Test Run #3	**24.54**	**53.89**
Average Result (Cm)	**24.57**	**53.86**
Accuracy (%)	**-3.06**	**-1.09**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	08-AI-0030A	**Calender Quarter:**	FOURTH
Unit:	8-B-1	**Analyzer Span:**	0 - 15%
Component:	OXYGEN (O_2)	**Serial Number:**	3.359909.2
Date:	Thursday, November 1, 2018	**Technician:**	BRYAN WINN
Start Time:	10:02	**End Time:**	11:19

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1950
High Range	1400

Cylinder Pressure (End)	
Low Range	1910
High Range	1390

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC92289	EB0020125
Cylinder Certification Date:	7/8/2018	10/7/2011
Cylinder Expiration Date:	7/8/2026	10/7/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	4.976	10.010

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**4.23**	**8.51**
Range of Allowance (±15%) High	**5.72**	**11.51**
Test Run #1	**4.99**	**10.00**
Test Run #2	**4.98**	**9.99**
Test Run #3	**4.98**	**10.00**
Average Result (Cm)	**4.98**	**10.00**
Accuracy (%)	**0.18**	**-0.14**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	32-AI-251	**Calender Quarter:**	FOURTH
Unit:	HDH	**Analyzer Span:**	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.346654.7
Date:	Wednesday, November 7, 2018	**Technician:**	BRYAN WINN
Start Time:	7:19	**End Time:**	8:36

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1900
High Range	1460

Cylinder Pressure (End)	
Low Range	1895
High Range	1440

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC419354	CC400311
Cylinder Certification Date:	1/3/2017	7/10/2013
Cylinder Expiration Date:	1/3/2020	7/10/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	24.79	57.71

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**21.07**	**49.05**
Range of Allowance (±15%) High	**28.51**	**66.37**
Test Run #1	**24.21**	**58.08**
Test Run #2	**24.25**	**57.91**
Test Run #3	**24.51**	**58.22**
Average Result (Cm)	**24.32**	**58.07**
Accuracy (%)	**-1.90**	**0.63**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	32-AI-250	**Calender Quarter:**	FOURTH
Unit:	HDH	**Analyzer Span:**	0 - 10%
Component:	OXYGEN (O_2)	**Serial Number:**	3.346624.7
Date:	Wednesday, November 7, 2018	**Technician:**	BRYAN WINN
Start Time:	7:19	**End Time:**	8:36

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1610
High Range	1590

Cylinder Pressure (End)	
Low Range	1600
High Range	1560

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC327623	CC337712
Cylinder Certification Date:	2/4/2011	2/3/2011
Cylinder Expiration Date:	2/4/2019	2/3/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.023	10.000

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**4.27**	**8.50**
Range of Allowance (±15%) High	**5.78**	**11.50**
Test Run #1	**5.01**	**10.00**
Test Run #2	**5.01**	**10.00**
Test Run #3	**5.02**	**10.00**
Average Result (Cm)	**5.01**	**10.00**
Accuracy (%)	**-0.17**	**-0.03**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	14-AI-146	**Calender Quarter:**	FOURTH
Unit:	FLARE	**Analyzer Span:**	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H_2S)	**Serial Number:**	1060
Date:	Monday, November 19, 2018	**Technician:**	JACOB PAZUREK
Start Time:	14:06	**End Time:**	14:33

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	2080
High Range	2090

Cylinder Pressure (End)	
Low Range	2075
High Range	2080

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC281328	CC358803
Cylinder Certification Date:	1/11/2018	1/10/2018
Cylinder Expiration Date:	1/11/2021	1/10/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	76.2	166.0

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**64.76**	**141.10**
Range of Allowance (±15%) High	**87.62**	**190.90**
Test Run #1	**72.22**	**159.20**
Test Run #2	**70.69**	**177.51**
Test Run #3	**73.74**	**168.36**
Average Result (Cm)	**72.22**	**168.36**
Accuracy (%)	**-5.22**	**1.42**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	14-AI-106	**Calender Quarter:**	FOURTH
Unit:	WASTE WATER	**Analyzer Span:**	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H_2S)	**Serial Number:**	H004440001
Date:	Monday, November 19, 2018	**Technician:**	JACOB PAZUREK
Start Time:	10:45	**End Time:**	11:26

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	2090
High Range	2060

Cylinder Pressure (End)	
Low Range	2080
High Range	2040

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC281328	CC358803
Cylinder Certification Date:	1/11/2018	1/10/2018
Cylinder Expiration Date:	1/11/2021	1/10/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	76.2	166.0

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**64.76**	**141.10**
Range of Allowance (±15%) High	**87.62**	**190.90**
Test Run #1	**72.28**	**181.70**
Test Run #2	**73.00**	**182.70**
Test Run #3	**72.92**	**182.30**
Average Result (Cm)	**72.73**	**182.23**
Accuracy (%)	**-4.54**	**9.78**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	14-AI-147 - RANGE A	**Calender Quarter:**	FOURTH
Unit:	FLARE	**Analyzer Span:**	0-5000 PPM
Component:	H_2S AS SULFUR DIOXIDE (SO_2)	**Serial Number:**	SL-09790714
Date:	Tuesday, November 20, 2018	**Technician:**	JACOB PAZUREK
Start Time:	12:51	**End Time:**	15:28

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	2090
High Range	2020

Cylinder Pressure (End)	
Low Range	2080
High Range	2010

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC472743	ALM036140
Cylinder Certification Date:	7/28/2017	7/13/2018
Cylinder Expiration Date:	7/28/2020	7/13/2021
Type of Cylinder Certification:	Certified Standard- Spec	Certified Standard- Spec
Concentration (ppm or % Ca):	1259.0	2759.0

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**1070.15**	**2345.15**
Range of Allowance (±15%) High	**1447.85**	**3172.85**
Test Run #1	**1261.70**	**2577.70**
Test Run #2	**1261.30**	**2740.20**
Test Run #3	**1254.70**	**2764.30**
Average Result (Cm)	**1259.23**	**2694.07**
Accuracy (%)	**0.02**	**-2.35**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	14-AI-147 - RANGE B	**Calender Quarter:**	FOURTH
Unit:	FLARE	**Analyzer Span:**	0-50%
Component:	H_2S AS SULFUR DIOXIDE (SO_2)	**Serial Number:**	SL-09790714
Date:	Tuesday, November 20, 2018	**Technician:**	JACOB PAZUREK
Start Time:	12:51	**End Time:**	15:28

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1600
High Range	1420

Cylinder Pressure (End)	
Low Range	1595
High Range	1415

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC57840	DT0015162
Cylinder Certification Date:	7/27/2017	12/7/2016
Cylinder Expiration Date:	7/27/2020	12/7/2019
Type of Cylinder Certification:	Certified Hydrocarbon	Certified Standard- Spec
Concentration (ppm or % Ca):	12.5	27.5

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**10.63**	**23.40**
Range of Allowance (±15%) High	**14.38**	**31.66**
Test Run #1	**12.45**	**26.71**
Test Run #2	**12.48**	**27.17**
Test Run #3	**12.42**	**27.00**
Average Result (Cm)	**12.45**	**26.96**
Accuracy (%)	**-0.39**	**-2.06**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	11-AI-1	**Calender Quarter:**	FOURTH
Unit:	REFORMER	**Analyzer Span:**	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H_2S)	**Serial Number:**	G0024
Date:	Thursday, November 29, 2018	**Technician:**	BRYAN WINN
Start Time:	11:09	**End Time:**	12:15

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	2150
High Range	2150

Cylinder Pressure (End)	
Low Range	2100
High Range	2100

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC281328	CC358803
Cylinder Certification Date:	1/11/2018	1/10/2018
Cylinder Expiration Date:	1/11/2021	1/10/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	76.2	166.0

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**64.76**	**141.10**
Range of Allowance (±15%) High	**87.62**	**190.90**
Test Run #1	**68.02**	**189.3**
Test Run #2	**70.22**	**187.0**
Test Run #3	**70.40**	**187.1**
Average Result (Cm)	**69.55**	**187.80**
Accuracy (%)	**-8.72**	**13.13**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	8-AI-2A	**Calender Quarter:**	FOURTH
Unit:	FCC	**Analyzer Span:**	0 - 10%
Component:	OXYGEN (O_2)	**Serial Number:**	3.249395.1
Date:	Tuesday, November 27, 2018	**Technician:**	BRYAN WINN
Start Time:	8:34	**End Time:**	11:21

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1900
High Range	2040

Cylinder Pressure (End)	
Low Range	1890
High Range	1990

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC36388	SG9120802BAL
Cylinder Certification Date:	2/7/2018	2/2/2018
Cylinder Expiration Date:	2/7/2026	2/2/2026
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	4.982	10.140

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**4.23**	**8.62**
Range of Allowance (±15%) High	**5.73**	**11.66**
Test Run #1	**5.00**	**10.23**
Test Run #2	**4.97**	**10.22**
Test Run #3	**4.97**	**10.23**
Average Result (Cm)	**4.98**	**10.23**
Accuracy (%)	**-0.08**	**0.86**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	8-AI-6	**Calender Quarter:**	FOURTH
Unit:	FCC	**Analyzer Span:**	0 - 1000 PPM
Component:	CARBON DIOXIDE (CO_2)	**Serial Number:**	3.249390.1
Date:	Tuesday, November 27, 2018	**Technician:**	BRYAN WINN
Start Time:	8:34	**End Time:**	11:21

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1900
High Range	2040

Cylinder Pressure (End)	
Low Range	1890
High Range	1990

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC36388	SG9120802BAL
Cylinder Certification Date:	2/7/2018	2/2/2018
Cylinder Expiration Date:	2/7/2026	2/2/2026
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	7.44	16.31

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**6.33**	**13.86**
Range of Allowance (±15%) High	**8.56**	**18.76**
Test Run #1	**7.33**	**15.96**
Test Run #2	**7.34**	**15.95**
Test Run #3	**7.34**	**15.95**
Average Result (Cm)	**7.34**	**15.95**
Accuracy (%)	**-1.43**	**-2.18**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	8-AI-7	**Calender Quarter:**	FOURTH
Unit:	FCC	**Analyzer Span:**	0 - 500 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.240138.2
Date:	Tuesday, November 27, 2018	**Technician:**	BRYAN WINN
Start Time:	8:34	**End Time:**	11:21

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	990
High Range	1100

Cylinder Pressure (End)	
Low Range	940
High Range	1090

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	SG9113283BAL	SG9163697BAL
Cylinder Certification Date:	2/23/2011	2/24/2011
Cylinder Expiration Date:	2/23/2019	2/24/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	123.5	274.5

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**104.98**	**233.33**
Range of Allowance (±15%) High	**142.03**	**315.68**
Test Run #1	**124.45**	**277.35**
Test Run #2	**124.53**	**276.62**
Test Run #3	**124.37**	**276.44**
Average Result (Cm)	**124.45**	**276.80**
Accuracy (%)	**0.77**	**0.84**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	8-AI-5	**Calender Quarter:**	FOURTH
Unit:	FCC	**Analyzer Span:**	0 - 1000 PPM
Component:	CARBON MONOXIDE (CO)	**Serial Number:**	3.249390.1
Date:	Tuesday, November 27, 2018	**Technician:**	BRYAN WINN
Start Time:	8:34	**End Time:**	11:21

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1900
High Range	2040

Cylinder Pressure (End)	
Low Range	1890
High Range	1990

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC36388	SG9120802BAL
Cylinder Certification Date:	2/7/2018	2/2/2018
Cylinder Expiration Date:	2/7/2026	2/2/2026
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	238.60	542.90

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**202.81**	**461.47**
Range of Allowance (±15%) High	**274.39**	**624.34**
Test Run #1	**241.05**	**543.56**
Test Run #2	**241.40**	**543.55**
Test Run #3	**241.42**	**543.60**
Average Result (Cm)	**241.29**	**543.57**
Accuracy (%)	**1.13**	**0.12**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	8-AI-2B	**Calender Quarter:**	FOURTH
Unit:	FCC	**Analyzer Span:**	0 - 3000 PPM
Component:	SULFUR DIOXIDE (SO_2)	**Serial Number:**	3.240138.2
Date:	Tuesday, November 27, 2018	**Technician:**	BRYAN WINN
Start Time:	8:34	**End Time:**	11:21

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1210
High Range	1100

Cylinder Pressure (End)	
Low Range	1190
High Range	1060

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC128882	CC152607
Cylinder Certification Date:	9/16/2011	9/20/2011
Cylinder Expiration Date:	9/16/2019	9/20/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	782.1	1699.0

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	**664.79**	**1444.15**
Range of Allowance (±15%) High	**899.42**	**1953.85**
Test Run #1	**790.28**	**1720.17**
Test Run #2	**793.91**	**1717.81**
Test Run #3	**791.72**	**1719.00**
Average Result (Cm)	**791.97**	**1718.99**
Accuracy (%)	**1.26**	**1.18**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Opacity Certification Services, LLC
A Proud Veteran-Owned Business
8600 Harbor Drive
Raleigh, North Carolina 27615
Phone 919.215.9384
Fax 919.846.6041
Web: www.opacitycertservices.com

Results of NIST-Traceable Opacity Filter (Audit Attenuators) Certification

Customer: **St. Paul Park Refining**

Date of Certification: May 15, 2018	Document No. **051518-03**
Date of Expiration: May 15, 2020	

*Filters (Attenuators) are certified in accordance with 40 CFR Part 60, Subpart B, "**Performance Specification 1**", as well as the most current **ASTM D6216** standard and **Opacity Procedure 3**. Laboratory spectrophotometer is calibrated daily by use of NIST SRM2031b standard reference materials.*

Spectrophotometer

Spectrophotometer: **Varian (HP) Cary 50 Conc**		Serial Number: **EL06023153**
Scanning Range: **380-780nm**	Data Interval: **10nm**	Spectral Bandpass: **1.5nm**
Maximum Accuracy: ± **0.250 Absolute Opacity**		Laboratory Temperature: **72° F** (± 3°)/**22° C** (± 1°)

NIST Standard Reference Material (SRM)

SRM Type: **NIST 2031b series**	Serial Number: **Blank; 709-10; 709-30; 709-90**
SRM Date of Certification: **February 22, 2017**	SRM Date of Expiration: **February 28, 2019**

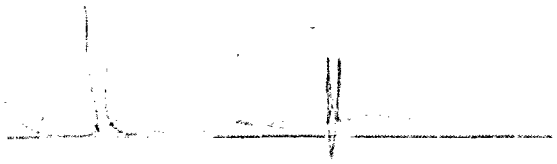
Opacity Monitor

Opacity Monitor Make/Model:	**Thermo Environmental 440** series		
Monitor Light Source:	**Incandescent**	Straight stack correction factor:	**1.000**
Angle of Incidence:	**10 degrees**	Correction factor (if given):	**1.000**

Opacity Filter Data

Serial Number	Opacity	Transmittance	Optical Density	Previous Opacity	Δ Opacity
3002	**10.65%**	89.35%	0.0489	10.67%	-0.02
SK22	**19.68%**	80.32%	0.0952	19.85%	-0.17
SK23	**34.42%**	65.58%	0.1832	34.48%	-0.06

Signature of Spectrophotometer Operator



Filter Certification Results for : **St. Paul Park Refining**

Filter Serial No : **3002**

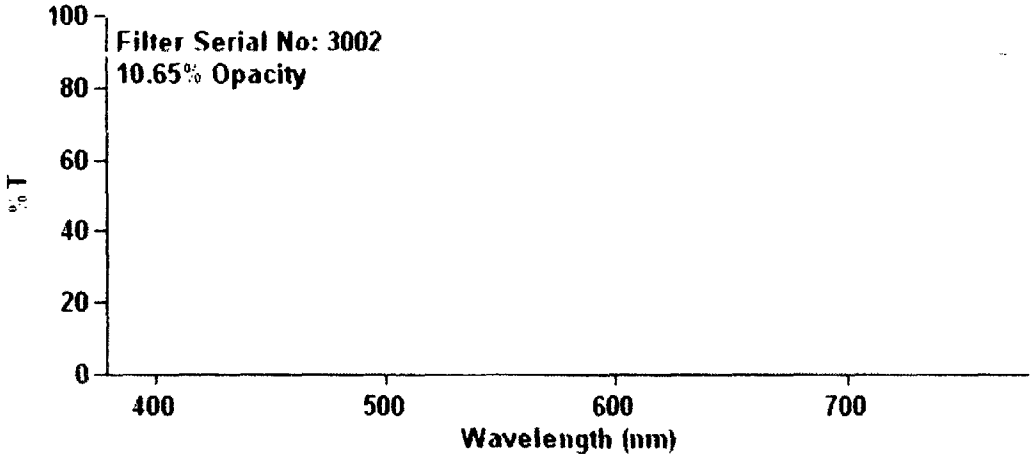
Date of Scan : 5/15/2018
Expiration Date :
Monitor : Thermo 440 series
Angle of Incidence : 10 deg

Opacity Value = **10.65%**

Transmittance = **89.35%**
Optical density = **0.0489**

Table 1-1: Opacity filter Scan Data at 10 nm Intervals

Lambda	Scan 1	Scan 2	Average	% Trans	Lambda	Scan 1	Scan 2	Average	% Trans
780	89.7	89.7	89.7	0.0	570	89.3	89.3	89.3	816781.
770	89.7	89.7	89.7	0.0	560	89.3	89.3	89.3	878867.
760	89.7	89.7	89.7	89.7	550	89.3	89.2	89.2	877418.
750	89.7	89.6	89.7	89.7	540	89.4	89.3	89.3	821351.
740	89.7	89.7	89.7	179.4	530	89.3	89.3	89.3	708601.
730	89.6	89.7	89.6	268.9	520	89.4	89.4	89.4	577598.
720	89.6	89.6	89.6	537.4	510	89.3	89.4	89.3	431788.
710	89.6	89.6	89.6	1254.0	500	89.3	89.3	89.3	303825.
700	89.5	89.5	89.5	2595.4	490	89.4	89.4	89.4	210792.
690	89.5	89.6	89.5	5550.3	480	89.5	89.4	89.5	144730.
680	89.5	89.4	89.5	11989.4	470	89.5	89.5	89.5	94694.6
670	89.4	89.4	89.4	23152.2	460	89.5	89.5	89.5	62125.7
660	89.4	89.4	89.4	45051.9	450	89.6	89.7	89.6	39709.2
650	89.3	89.3	89.3	79138.2	440	89.6	89.6	89.6	23477.7
640	89.3	89.3	89.3	128840.	430	89.7	89.7	89.7	10946.3
630	89.3	89.3	89.3	195573.	420	89.8	89.8	89.8	3321.5
620	89.3	89.3	89.3	281659.	410	89.9	89.9	89.9	809.0
610	89.3	89.3	89.3	372949.	400	89.9	89.9	89.9	179.6
600	89.3	89.3	89.3	474623.	390	89.9	89.9	89.9	0.0
590	89.3	89.3	89.3	591596.	380	89.6	89.6	89.6	0.0
580	89.3	89.3	89.3	713382.		0.0	0.0	0.0	0.0



Filter Certification Results for : **St. Paul Park Refining**

Filter Serial No : **SK22**

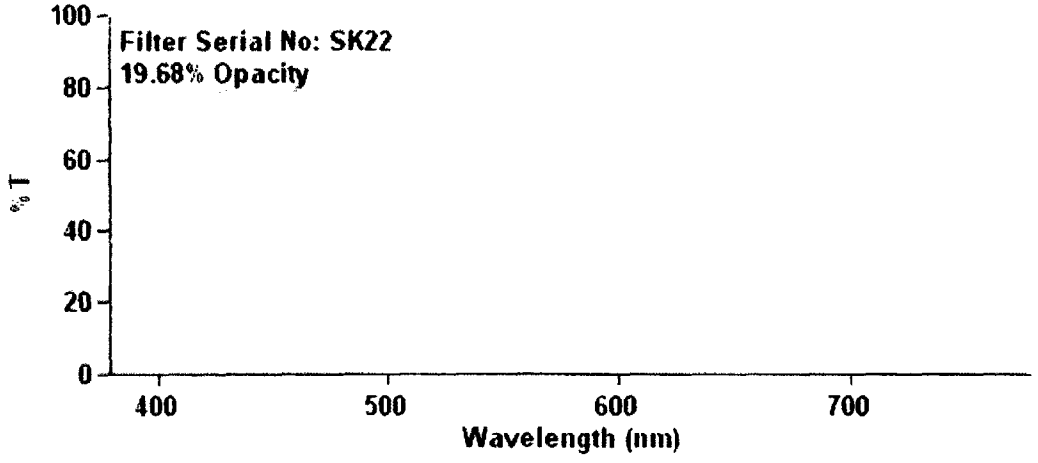
Date of Scan : 5/15/2018
Expiration Date :
Monitor : Thermo 440 series
Angle of Incidence : 10 deg

Opacity Value = **19.68%**

Transmittance = **80.32%**
Optical density = **0.0952**

Table 1-1: Opacity filter Scan Data at 10 nm Intervals

Lambda	Scan 1	Scan 2	Average	% Trans	Lambda	Scan 1	Scan 2	Average	% Trans
780	82.0	82.0	82.0	0.0	570	80.5	80.4	80.5	735950.
770	81.9	82.0	82.0	0.0	560	80.4	80.4	80.4	791087.
760	81.9	81.9	81.9	81.9	550	80.2	80.2	80.2	788501.
750	81.8	81.9	81.8	81.8	540	80.2	80.2	80.2	737215.
740	81.8	81.8	81.8	163.7	530	80.0	80.0	80.0	634539.
730	81.8	81.8	81.8	245.4	520	79.9	79.9	79.9	516535.
720	81.7	81.7	81.7	490.2	510	79.7	79.8	79.8	385460.
710	81.7	81.7	81.7	1143.5	500	79.6	79.6	79.6	270674.
700	81.5	81.6	81.5	2363.8	490	79.5	79.5	79.5	187429.
690	81.5	81.5	81.5	5053.4	480	79.3	79.3	79.3	128326.
680	81.4	81.4	81.4	10913.4	470	79.2	79.2	79.2	83809.1
670	81.3	81.3	81.3	21059.7	460	79.0	79.1	79.0	54858.9
660	81.3	81.3	81.3	40963.2	450	79.0	79.0	79.0	34991.9
650	81.2	81.1	81.1	71885.1	440	78.6	78.6	78.6	20599.1
640	81.1	81.0	81.1	116966.	430	78.5	78.5	78.5	9577.1
630	81.0	81.0	81.0	177324.	420	78.2	78.2	78.2	2894.8
620	80.9	80.9	80.9	255137.	410	78.1	78.1	78.1	702.8
610	80.8	80.9	80.9	337663.	400	77.8	77.8	77.8	155.6
600	80.7	80.7	80.7	429175.	390	77.4	77.5	77.4	0.0
590	80.7	80.6	80.6	534371.	380	76.8	76.8	76.8	0.0
580	80.6	80.6	80.6	643878.		0.0	0.0	0.0	0.0



Filter Certification Results for : **St. Paul Park Refining**

Filter Serial No : **SK23**

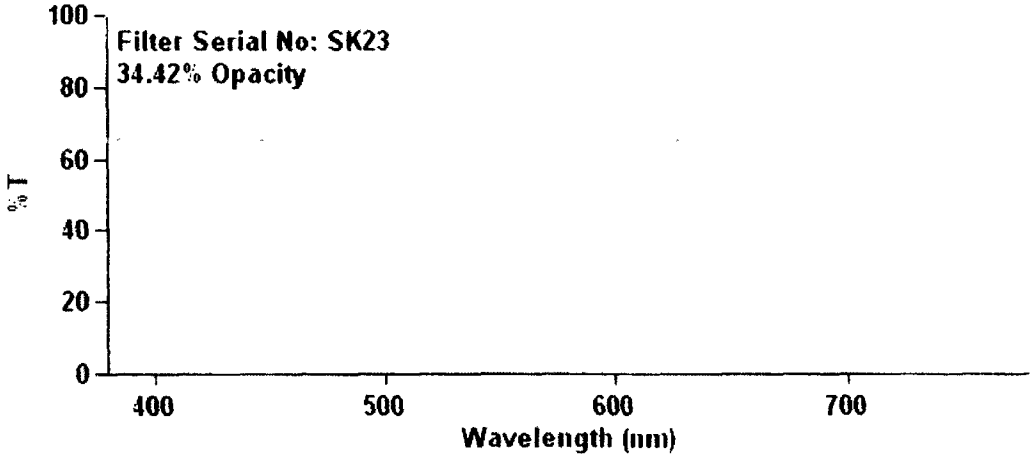
Date of Scan : 5/15/2018
Expiration Date :
Monitor : Thermo 440 series
Angle of Incidence : 10 deg

Opacity Value = **34.42%**

Transmittance = **65.58%**
Optical density = **0.1832**

Table 1-1: Opacity filter Scan Data at 10 nm Intervals

Lambda	Scan 1	Scan 2	Average	% Trans	Lambda	Scan 1	Scan 2	Average	% Trans
780	66.2	66.1	66.1	0.0	570	65.6	65.5	65.6	599701.
770	66.0	66.1	66.1	0.0	560	65.6	65.5	65.6	645149.
760	66.0	66.0	66.0	66.0	550	65.5	65.5	65.5	643830.
750	66.0	66.0	66.0	66.0	540	65.6	65.5	65.5	602508.
740	66.0	66.0	66.0	132.0	530	65.5	65.5	65.5	519755.
730	65.9	66.0	66.0	197.9	520	65.6	65.6	65.6	423717.
720	65.9	65.9	65.9	395.5	510	65.5	65.5	65.5	316677.
710	65.9	65.9	65.9	922.5	500	65.5	65.5	65.5	222755.
700	65.8	65.9	65.8	1909.3	490	65.5	65.5	65.5	154505.
690	65.8	65.8	65.8	4081.1	480	65.6	65.6	65.6	106128.
680	65.8	65.8	65.8	8818.2	470	65.6	65.6	65.6	69440.2
670	65.7	65.7	65.7	17025.1	460	65.6	65.6	65.6	45535.8
660	65.7	65.7	65.7	33125.6	450	65.8	65.8	65.8	29146.8
650	65.7	65.7	65.7	58209.1	440	65.7	65.7	65.7	17206.1
640	65.6	65.7	65.6	94729.9	430	65.7	65.7	65.7	8018.3
630	65.6	65.7	65.6	143765.	420	65.7	65.7	65.7	2432.0
620	65.6	65.6	65.6	206953.	410	65.8	65.8	65.8	592.1
610	65.7	65.6	65.7	274159.	400	65.8	65.8	65.8	131.6
600	65.6	65.6	65.6	348693.	390	65.8	65.7	65.8	0.0
590	65.6	65.6	65.6	434604.	380	65.6	65.6	65.6	0.0
580	65.5	65.5	65.5	523846.		0.0	0.0	0.0	0.0



Appendix B

Amended 1QTR18 CEMS Excess Emissions and Downtime Report, Incident B – FCC Unit Trip Due to Low Feed Narrative,

Amended 1st Quarter 2018 – Percent Excess Emissions and CEM Downtime Summary

Amended Individual FCC CO Excess Emission and CEM Reporting Forms

Section 1
Report Certification

Certification for Amended First Quarter 2018 CEM Excess Emission and CEM Downtime Report – Narrative and Reporting Forms

This section of the report serves as the St. Paul Park Refining Co. LLC and Western Refining Terminals LLC's written certification of the information contained within this report. This certification is comprehensive of the entire report and replaces the need for certification of each of the Excess Emissions and CEM Reporting Forms.

St. Paul Park Refining Co. LLC & Western Refining Terminal LLC

Based on the information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete.

Tommy Chavez, Vice President and Refinery Manager

6-28-2019
Date

Excess Emissions Summary
First Quarter 2018

Excess Emissions Summary

Incident A – Flare Gas Exceedance during Hydrogen Plant Pressure Swings

On 1/2/18 and 1/5/18 the flow to the flare header spiked up several times and sequentially the H2S concentration at the flare analyzer spiked up. The H2S in the flare gas exceeded the 162 ppm 3-hr limit on 1/2/18 at 8:00 am and again on 1/5/18 at 4:00 am. During these periods, there were spikes in Hydrogen Plant PSA feed gas sent through the flare header that swept existing pockets of H2S to the flare. Subzero temperatures had occurred on these dates and caused pressure swings on certain equipment in the Hydrogen Plant and increased venting to the flare header. Checks were made to verify accuracy of instrument readings on equipment. A PSV was inspected and tested to ensure it was operating properly, a pressure transmitter was replaced on PSA bed 4 and replacement of positioners on other PSA bed valves was also planned. Flare H2S scavenger was used to reduce flare H2S emissions during the event.

There were no exceedances of the flare 500 lbs. SO_2 /24-hour reportable quantity or applicable flare vent gas work practice standard. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	01/02/2018, 08:00	170
2	01/05/2018, 04:00	243
3	01/05/2018, 05:00	284
4	01/05/2018, 06:00	240

Incident B –FCC Unit Trip Due to Low Feed

On 1/12/2018 at approximately 8:18 PM, a control valve closed causing low feed flow to the riser and resulted in a safety instrumentation system (SIS) trip of the FCC unit. Instrumentation found a cap/plug missing in the failed key switch in a control panel which resulted in a loss of air pressure at the redundant valve solenoids. Without the air pressure in the solenoids, the valve failed closed. The key switch was replaced and the system was tested to prove functionality. The missing cap/plug on the key switch was determined to be a manufacturer's defect in the panel design. Surveys were completed on other similar control panels to determine if they were leaking air and had a similar failure point on their key switch. Those found with the same defect were replaced.

On 1/13/2018 at approximately 8:18 PM, feed was introduced back into the unit during start-up. As feed was introduced, pressure built-up in the scrubber system and relieved to the flare resulting in three exceedances of the flare 162 ppm 3-hr rolling average limit. Operations found a frozen pipe between the mercaptan extractor and the polarex separator section. Operations applied steam to thaw the frozen pipe and continued with the startup procedure. Flare H2S scavenger was used to reduce flare H2S emissions during the event.

The malfunction and start-up of the FCC Unit resulted in 84 exceedances of the 30% opacity/6-minute average limit and three exceedances of the flare 162 ppm 3-hr rolling average limit, which were reported in the 1QTR18 CEMS Downtime and Excess Emissions report. However, the exceedances of the 500 ppm/1-hr CO limit were inadvertently excluded from the description of the event in the narrative and corresponding FCC CEMS worksheets and 1QTR18 summary page. It was assumed that since all the exceedances occurred during SU/SD of the unit and the %O2 was maintained >1% that the excess emissions were not reportable. While this is the case under MACT UUU, the excess emissions are still reportable under NSPS J.

Start-up and shutdown unit resulted in 23 exceedances of the 500 ppm/1-hr CO limit. Since measured CO data points are not verifiable or accurate when 50% greater than the high calibration gas concentration, a value of 1,342.5 ppm (1.5 times the daily span calibration gas concentration of 895 ppm CO) was substituted for all greater data points. The recalculated and verifiable value is provided in the last column of the table. SPPRC believes these periods to be exempt under SSM provisions NSPS J of the regulations and is providing the data for informational purposes only.

There were no exceedances of the flare 500 lbs. SO_2 /24-hour reportable quantity or applicable flare vent gas work practice standard. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods over 30% Opacity/6-min Avg. (Running total)	Periods over 30% Opacity/6-min Avg. Allowed	Date and Time	6-min Avg. Opacity (% opacity)
1	1	1/13/18 11:12	31.7
2		1/13/18 11:18	37.3
3		1/13/18 14:42	30.4
4		1/13/18 14:48	30.2
5		1/13/18 14:54	30.5
6	1	1/13/18 15:00	30.2
7		1/13/18 15:12	29.9
8		1/13/18 15:18	30.6
9		1/13/18 15:24	30.6
10		1/13/18 15:30	30.8
11		1/13/18 15:36	30.6
12		1/13/18 15:42	30.6
13		1/13/18 15:48	30.8
14		1/13/18 15:54	30.6
15	1	1/13/18 16:00	32.1
16		1/13/18 16:06	31.5
17		1/13/18 16:12	31.2
18		1/13/18 16:18	31.5
19		1/13/18 16:24	31.3
20		1/13/18 16:30	31.2

Periods over 30% Opacity/6-min Avg. (Running total)	Periods over 30% Opacity/6-min Avg. Allowed	Date and Time	6-min Avg. Opacity (% opacity)
21		1/13/18 16:36	31.3
22		1/13/18 16:42	31.6
23		1/13/18 16:48	30.9
24		1/13/18 16:54	31.6
25	1	1/13/18 17:00	40.3
26		1/13/18 17:06	31.1
27		1/13/18 17:12	31.5
28		1/13/18 17:18	32.2
29		1/13/18 17:24	31.3
30		1/13/18 17:30	32.2
31		1/13/18 17:36	33.2
32		1/13/18 17:42	33.1
33		1/13/18 17:48	33.0
34		1/13/18 17:54	32.7
35	1	1/13/18 18:00	33.0
36		1/13/18 18:06	32.8
37		1/13/18 18:12	32.2
38		1/13/18 18:18	32.6
39		1/13/18 18:24	33.2
40		1/13/18 18:30	33.5
41		1/13/18 18:36	33.9
42		1/13/18 18:42	33.9
43		1/13/18 18:48	33.9
44		1/13/18 18:54	33.9
45	1	1/13/18 19:00	35.1
46		1/13/18 19:06	34.9
47		1/13/18 19:12	35.2
48		1/13/18 19:18	37.1
49		1/13/18 19:24	36.1
50		1/13/18 19:30	34.0
51		1/13/18 19:36	36.0
52		1/13/18 19:42	34.7
53		1/13/18 19:48	34.0
54		1/13/18 19:54	34.7
55	1	1/13/18 20:00	35.6
56		1/13/18 20:06	34.2
57		1/13/18 20:12	32.9
58		1/13/18 20:18	30.1

Periods over 30% Opacity/6-min Avg. (Running total)	Periods over 30% Opacity/6-min Avg. Allowed	Date and Time	6-min Avg. Opacity (% opacity)
59		1/13/18 20:24	50.0
60		1/13/18 20:30	38.1
61		1/13/18 20:36	49.1
62		1/13/18 20:42	48.1
63		1/13/18 20:48	46.8
64		1/13/18 20:54	46.0
65	1	1/13/18 21:00	45.1
66		1/13/18 21:06	46.0
67		1/13/18 21:12	45.8
68		1/13/18 21:18	38.2
69		1/13/18 21:24	42.0
70		1/13/18 21:30	41.5
71		1/13/18 21:36	39.0
72		1/13/18 21:42	43.4
73		1/13/18 21:48	36.4
74		1/13/18 21:54	46.8
75	1	1/13/18 22:00	46.0
76		1/13/18 22:06	45.1
77		1/13/18 22:12	46.0
78		1/13/18 22:18	45.8
79		1/13/18 22:24	38.2
80		1/13/18 22:30	42.0
81		1/13/18 22:36	41.5
82		1/13/18 22:42	39.0
83		1/13/18 22:48	43.4
84		1/13/18 22:54	36.4
85		1/13/18 22:00	38.5
86		1/13/18 22:06	33.0
87		1/13/18 22:12	51.2
88		1/13/18 22:18	63.0
89		1/13/18 22:24	49.9
90		1/13/18 22:30	38.3
91		1/13/18 22:36	38.1
92		1/13/18 22:42	30.6
93	1	1/13/18 23:42	32.3
94		1/13/18 23:48	34.5
95		1/13/18 23:54	31.4
96	1	1/14/18 0:06	30.9

Periods over 30% Opacity/6-min Avg. (Running total)	Periods over 30% Opacity/6-min Avg. Allowed	Date and Time	6-min Avg. Opacity (% opacity)
97		1/14/18 0:12	30.6
98		1/14/18 0:30	31.2
99		1/14/18 0:36	32.1
100		1/14/18 0:42	33.6
101		1/14/18 0:48	33.5
102		1/14/18 0:54	31.5
103	1	1/14/18 1:00	34.7
104		1/14/18 1:06	31.9
105		1/14/18 1:12	30.9
106		1/14/18 1:18	30.7

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	1/13/18 23:00	282
2	1/14:00 00:00	368
3	1/14:00 01:00	373

Periods Over 500 ppm CO @ 0% O_2 1-hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)	% O2
1	1/12/18, 21:00	925	617	>1%
2	1/12/18, 22:00	1802	1278	>1%
3	1/13/18, 00:00	1179	1084	>1%
4	1/13/2018 1:00	1968	1327	>1%
5	1/13/2018 2:00	1149	1038	>1%
6	1/13/2018 5:00	670	669	>1%
7	1/13/2018 6:00	662	664	>1%
8	1/13/2018 7:00	524	526	>1%
9	1/13/2018 8:00	610	608	>1%
10	1/13/2018 9:00	655	658	>1%
11	1/13/2018 10:00	579	579	>1%
12	1/13/2018 12:00	1281	1141	>1%
13	1/13/2018 13:00	1728	1327	>1%
14	1/13/2018 14:00	1456	1323	>1%
15	1/13/2018 15:00	1365	1323	>1%
16	1/13/2018 16:00	1284	1274	>1%
17	1/13/2018 17:00	1413	1320	>1%

Periods Over 500 ppm CO @ 0% O_2 1-hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)	% O2
18	1/13/2018 18:00	1310	1301	>1%
19	1/13/2018 19:00	1293	1280	>1%
20	1/13/2018 20:00	1019	1022	>1%
21	1/13/2018 21:00	951	793	>1%
22	1/13/2018 23:00	744	426	>1%
23	1/14/2018 0:00	1364	627	>1%

Incident C – Flare H2S Exceedance from Amine Unit Malfunction

On January 31, 2018, an upset in the Amine Unit resulted in an over pressurization of the fuel system feeding the unit which relieved to the flare. This upset resulted in two (2) exceedances of 162 ppm 3-hr rolling average limit for H2S (186, 207 ppmvd) from 0700 to 0900 hrs. Flare H2S scavenger was used to reduce flare H2S emissions during the event.

There were no exceedances of the flare 500 lbs. SO_2 /24-hour reportable quantity or applicable flare vent gas work practice standard. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	1/31/18 07:00	186
2	1/31:00 08:00	207

Incident D – Flare H2S Exceedance Due to Frozen Valve on Back-up Tailgas Compressor

On 2/4/2018, operators were in the process of switching from the main crude tail gas compressor to the back-up compressor for maintenance work. At approximately 8:37 PM, the discharge check valve on the back-up compressor was discovered to be frozen closed, which caused no flow going to the FCC Main Column Overhead. As a result, this caused the foul water stripper system to over pressure and relieve to the flare though pressure relief valve. The foul water stripper system pressure relief to the flare resulted in two exceedances of the flare H2S 162 PPM 3hr rolling average. The operator switched back to the main crude tail gas compressor and steam was used to thaw the frozen discharge valve on the back-up compressor. Heat tracing will be added to the discharge valves and related section of piping on the back-up compressor by 9/28/18. Flare H2S scavenger was used to reduce flare H2S emissions during the event.

There were no exceedances of the flare 500 lbs. SO_2 /24-hour reportable quantity or applicable flare vent gas work practice standard. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	02/04/18, 21:00	184

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
2	02/04/18, 22:00	201

Incident E – Flare H2S Exceedance during Preparation for Level Indicator Maintenance

On March 15, 2018, three exceedances of the flare H2S 162 ppm 3-hr rolling average were noted on March 15 from 0000 to 0300 hrs. Preliminary review indicates these exceedances were associated with preparing a level indicator (32-LI-5C) for maintenance. The instrument was isolated and depressurized to the tail gas compressor prior. Then the instrument was steamed to the flare. The instrument is part of the safety instrumentation system for the Unit 32 Hot Flash Drum that closes a valve during emergency upsets or equipment malfunctions. When the elevated Flare H2S was noted, steaming of the instrument to the flare was stopped and was sent back to the tail gas compressor. Flare H2S scavenger had already been added proactively prior to the start of the maintenance work to reduce flare H2S emissions during the event.

There were no exceedances of the flare 500 lbs. SO_2 /24-hour reportable quantity or applicable flare vent gas work practice standard.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	03/15/18, 00:00	339
2	03/15/18, 01:00	346
3	03/15/18, 02:00	358

Incident F – Flare H2S Exceedance during Equipment Preparation for Maintenance

On March 17, 2018, six exceedances of 162 ppm 3-hr rolling average limit for H2S were noted. Six exceedances occurred from 1000 to 1300 hrs. and from 2200 to March 18, 0100 hrs. Preliminary review indicates these exceedances were associated with draining a heat exchanger (31E-1A) in order to perform maintenance. Flare H2S scavenger was used to reduce flare H2S emissions during the event. This incident is currently under investigation.

There were no exceedances of the flare 500 lbs. SO_2 /24-hour reportable quantity or applicable flare vent gas work practice standard.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H_2S)
1	03/17/18, 10:00	172
2	03/17/18, 11:00	180
3	03/17/18, 12:00	189
4	03/17/18, 22:00	519
5	03/17/18, 23:00	524
6	03/18/18, 00:00	526

SARA Reportable Release Summary

There were no SARA reportable releases during 1st quarter 2018.

SBC/BWON Vent Gas System

During the 1st quarter of 2018, BWON vent gasses were bypassed around the WWTP TO and associated temperature monitor 0.2% percent of the time or 4.6 hours.

Bypasses were the result of natural gas curtailment, scheduled maintenance and/or testing activities, or minor WWTP malfunctions where the oxidizer is bypassed due to safety concerns and process malfunctions.

Monitor Bypass Summary

There were no monitor bypasses during the 1st quarter 2018.

SRU Bypass Summary

There were no SRU bypasses during the 1st quarter 2018 that resulted in an exceedance of an SO_2 emission limit.

1st Quarter 2018 - Percent Excess Emissions and CEM Downtime Summary (Corrected on 1/16/19)

Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
Refinery Fuel Gas Drum (H2S ppmv, 3-hr rolling ave)	0.00%	0.23%
Refinery Fuel Gas Drum (H2S ppmv, 365-day rolling ave)	0.00%	0.23%
Heater 28-B-1 (lb SO2/mmbtu, 3 hr average)	0.00%	---
Heater 28-B-1 (lb SO2/hr, 3 hr average)	0.00%	---
Heater 28-B-1 fuel gas flow meter	---	0.05%
Heater 28-B-1 fuel oil flow meter	---	0.00%
FCC Opacity (30%, 6-min average)	0.41%	0.69%
FCC Opacity (20%, 3-hr average)	0.00%	0.69%
FCC CO (ppm)	~~0.00%~~ 1.26%	0.42%
FCC NOx (ppm - 365 day rolling average)	0.00%	0.42%
FCC NOx (ppm - 7 day rolling average)	0.00%	0.42%
FCC SO2 (ppm - 7 day rolling average)	0.00%	0.42%
FCC SO2 (ppm - 365 day rolling average)	0.00%	0.42%
FCC SO2 (lb/hr)	0.00%	0.42%
FCC SOx (lb/1000 lb coke burn)	0.00%	0.42%
Heater 5-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 5-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 5-B-1 fuel gas flow meter	---	0.05%
Heater 5-B-1 fuel oil flow meter	---	0.00%
Heater 2-B-3 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.05%
Heater 2-B-3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 2-B-3 (lbs NOx/mmbtu, 3-hr rolling ave)	0.00%	0.65%
Heater 2-B-3 (lbs NOx/mmbtu, 12-Month rolling ave)	0.00%	0.65%
Heater 2-B-3 NSP fuel gas flow meter	---	0.00%
Heater 2-B-3 Fuel Gas flow meter	---	0.05%
Heater 2-B-3 NOX/O2 CEM	---	0.65%
Heater 1-B-5 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 1-B-5 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 1-B-5 fuel gas flow meter	---	0.19%
Heater 1-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 1-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 1-B-7 fuel gas flow meter	---	0.05%
Heater 1-B-7 fuel oil flow meter	---	0.00%
Heater 29-B-1/29-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 29-B-1/29-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 29-B-1/29-B-2 fuel gas flow meter	---	0.23%
Heater 3-B-1/2/3 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-1/2/3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-1/2/3 fuel gas flow meter	---	0.05%
Heater 3-B-4 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-4 fuel gas flow meter	---	0.05%
Heater 3-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-7 fuel gas flow meter	---	0.05%
Heater 3-B-8 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-8 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-8 fuel gas flow meter	---	0.05%
Heater 34-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 34-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 34-B-1 fuel gas flow meter	---	0.19%
Heater 34-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 34-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 34-B-2 fuel gas flow meter	---	0.14%
Heater 34-B-2 fuel gas flow meter	---	0.00%
Heater 32-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 32-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 32-B-1 fuel gas flow meter	---	0.51%
Heater 32-B-1 (NOx lb/mmbtu, 365 day rolling ave)	0.00%	0.51%
Heater 10-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 10-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 10-B-1 fuel gas flow meter	---	0.05%
Heater 10-B-1 fuel oil flow meter	---	0.00%

1st Quarter 2018 - Percent Excess Emissions and CEM Downtime Summary (Corrected on 1/16/19)

Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
#2 SRU/SCOT SO2/O2 (ppmv, 12-hr ave)	0.00%	0.83%
#2 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave)	0.00%	0.83%
#2 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave)	0.00%	0.83%
#2 SRU/SCOT bypasses	0.00%	---
Heater 36-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-1 fuel gas flow meter	---	0.05%
Heater 36-B-2, 3, and 4 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-2, 3, and 4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-2, 3, and 4 fuel gas flow meter	---	0.05%
Heater 36-B-6E (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-6E (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-6E fuel gas flow meter	---	0.14%
Heater 36-B-6W (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-6W (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-6W fuel gas flow meter	---	0.14%
Heater 37-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 37-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 37-B-1 fuel gas flow meter	---	0.05%
Heater 37-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 37-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 37-B-2 fuel gas flow meter	---	0.05%
Heaters 38-B-1, 38-B-2 (lb SO2/hr, 3-hr rolling ave)	0.00%	---
Heaters 38-B-1, 38-B-2 (lb SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heaters 38-B-1, 38-B-2 NSP Gas flow meter	---	0.05%
Heaters 38-B-1, 38-B-2 PSA fuel gas flow meter	---	0.05%
Light oil loadrack **VRU** (TOC ppmv, 6-hr average)	0.00%	0.00%
Light oil loadrack- **Permanent** VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave)	0.00%	0.00%
Refinery flare (presence of pilots)	0.00%	0.00%
Refinery flare (MMSCF/24-hours)	0.00%	0.00%
Refinery flare - SARA Reportable emissions - SO2	0.00%	0.60%
Refinery flare - SARA Reportable emissions - NOx	0.00%	---
Refinery flare - H2S (3-hour rolling average)	1.06%	0.42%
W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave)	0.00%	0.05%
W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave)	0.00%	0.14%
W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave)	0.00%	0.14%
#3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave)	0.00%	0.65%
#3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave)	0.00%	0.65%
#3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave)	0.00%	0.65%
#3 SRU/SCOT Bypasses	0.00%	---
NP VEPR Phase 1 - **Catalytic AB** w/Heat Exchg (Temp, 3-hr rolling ave)	0.00%	0.00%
NP VEPR Phase 2 - **Catalytic AB** w/Heat Exchg (Temp, 3-hr rolling ave)	0.00%	0.00%
Boiler 7 NOx (lb/MMBtu, 30 day rolling ave)	0.00%	0.28%
Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave)	0.00%	---
Boiler 7 fuel gas flow meter	---	0.05%
Boiler 8 NOx (lb/MMBtu, 30 day rolling ave)	0.00%	0.32%
Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave)	0.00%	---
Boiler 8 fuel gas flow meter	---	0.05%
Heater 8-B-1 (lb SO2/mmbtu, 3-hr average)	0.00%	---
Heater 8-B-1 (lb SO2/hr, 3-hr average)	0.00%	---
Heater 8-B-1 (ppmvd, 30-day average)	0.00%	5.93%
Heater 8-B-1 fuel gas flow meter	---	0.05%
GP 032 CO (TPY, Combined 12-month Rolling Sum)	0.00%	---
Boiler 7 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 8)	---	0.37%
Boiler 8 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 7)	---	0.37%
GP 032 NOx (TPY, Combined 12-month Rolling Sum)	0.00%	---
Boiler 7 NOx (TPY, Combined 12-month Rolling Sum w/ Boiler 8)	---	0.28%
Boiler 8 NOx (TPY, Combined 12-month Rolling Sum w/ Boiler 7)	---	0.32%

Notes:

(1) 0.00% indicates No Excess Emissions.

(2) Monitor Downtime includes daily calibration checks for opacity.

(3) 0.00% indicates No Monitor Downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 SOX NOx (CO) CO2 O2 TRS H2S HCL Opacity

Other: Organic HAP per MACT Subpart UUU

REPORTING QUARTER: First, 2018

MONITOR MODEL: Advance Optima (Uras 14) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME: 500 ppmvd - 1 hour average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: NSPS Subpart J - 40 CFR 60.103(a)

ASSOCIATED ITEMS: EQUI164, TREA17

40 CFR 63.1565(a)(1)(ii)

40 CFR 63, MACT Subpart UUU, Table 8, Option 2

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2160

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	~~0.00~~ 27.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	9.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	~~0.00~~ 27.00	2 TOTAL DURATION (HRS)	9.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	~~0.00~~ 1.26%	3 PERCENT OF TOTAL CEM DOWNTIME	0.42%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: Actual monitored values are noted in this section. During excess emission events, a value equal to 1.5 times the high calibration gas concentration is used to replace any analyzer readings over that value since measured data points are not verifiable or accurate when at least 50% greater than the high calibration gas concentration. See Excess Emissions Summary for greater detail.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: First, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: CO and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), hourly average Actual	Recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown				
1/12/2018 21:00				
1/14/2018 6:00	27.00	1968	1343	Please see the amendment to 1QTR18 CEMS Excess Emissions and Downtime Report
Total	27.00			
b) Control equipment				
1/1/2018				
4/1/2018				No excess emissions.
Total	0.00			
c) Process problems				
1/1/2018				
4/1/2018				No excess emissions.
Total	0.00			
d) Other known causes				
1/1/2018				
4/1/2018				No excess emissions.
Total	0.00			
e) Unknown causes				
1/1/2018				
4/1/2018				No excess emissions.
Total	0.00			
f) Soot blowing				
1/1/2018				
4/1/2018				No excess emissions.
Total	0.00			
g) Fuel problems				
1/1/2018				
4/1/2018				No excess emissions.
Total	0.00			

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: First, 2018 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: CO and O2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
2/21/2018 13:00		
2/21/2018 16:00	3.00	Communications error
2/21/2018 18:00		
2/21/2018 19:00	1.00	Communications error
2/22/2018 14:00		
2/22/2018 15:00	1.00	Communications error
2/22/2018 17:00		
2/22/2018 19:00	2.00	Communications error
3/21/2018 10:00		
3/21/2018 12:00	2.00	Communications error
Total	9.00	
e) Unknown causes		
Total	0.00	